

REPORT



Gender Mainstreaming to Support Agricultural Development for Improved Livelihoods

Best Practices in Eastern and Southern Africa



Editors: Adeline R Muheebwa and Yeshi Chiche



Conservation Agriculture (CA) technology practices provide incentives such as reduced farm labour, two crops on the same plot (intercrop), increased yields and reduced soil degradation among others which has contributed to their accelerated adoption.



Best practices and lessons learnt

Case studies on

Gender Mainstreaming in the Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) Programme

Editors

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Front cover: *Mr Daniel and his wife, SIMLESA beneficiaries of the exploratory trials in Gorongosa, Mozambique, have resolved to work together at the farm and in the household after the gender awareness training. The unpaid household tasks such as child care may hinder women from technology utilisation and adoption.*

Back cover: *Women farmers benefit from growing hybrid maize (MH26), promoted by SIMLESA in Mtunthama Extension Planning Area, Kasungu district, Malawi.*

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Executive Summary

In December 2012, the programme on “Sustainable Intensification of Maize-Legume cropping systems for food security in Eastern and Southern Africa” (SIMLESA) commissioned a study to compile case studies of good practices in gender mainstreaming in the areas covered by the programme. This study was a result of an action point agreed on by participants at a Gender Mainstreaming Training Workshop held in July 2011 in Morogoro, Tanzania. The compilation of the case studies of good practices was intended to take stock and showcase the efforts of gender mainstreaming in the SIMLESA programme that had started three years earlier.

The assignment had three major tasks: (1) to review the case studies collected by the SIMLESA programme staff to determine the potential for generation of gender responsive case studies; (2) to conduct field visits to the five countries (Ethiopia, Kenya, Malawi, Mozambique, Tanzania) and collect additional gender data/information on the case studies, to ensure that the case studies are comprehensive in demonstrating the gender concerns/issues from various countries; and (3) to compile at least five case studies for each country, highlighting the change resulting from (or impact of) the gender mainstreaming efforts of the SIMLESA programme.

The Gender and Development (GAD) approach, which focuses on the social, economic and political relations between men and women of all categories in the community, was applied in the analysis of the case studies. Methods used to collect the case studies included interviews with farmers and SIMLESA staff, Focus Group Discussions of different categories of community members, discussions with key informants and observations of the programme activities at farm level. During the collection of the case studies, efforts were made to identify cases that tended to transform the existing gender relations into more equitable relations, and which improved the access of different members of the community to development opportunities provided by the programme. Twenty five case studies, five from each country, were identified. The case studies collected fall into six broad categories, as described in what follows:

- **Labour:** The impact of Conservation Agriculture on gender divisions of labour is apparent in the crop-livestock interactions. There was an initial increase in labour and time for the women who feed the animals and the young boys who herd the animals. They tend to spend more time and travel longer distances to herd and find feed for the animals, as stover (maize crop residue, consisting of dried stalks and leaves) is retained in the fields.

The SIMLESA baseline data sets have the potential for in-depth analysis to spur development

- **Fostering equitable representation:** Various categories of beneficiaries, such as the youth, polygamous families, female-headed households, people with disabilities, and the poor had variable responses to the programme. Their ability to benefit from the programme depends on the strategies put in place to address the various gender constraints relating to services like extension, among others.
- **Gender and Technology:** Technology preferences were observed to vary among different categories of persons, with women, men, and the elderly tending to adopt some technologies and not others.
- **Seed System:** Women tended to be the custodians of seed in the community.
- **Gender and Assets:** Matrilineal and patrilineal societies exhibited varying power relations in access to, and control of, assets, as well as in decision making.
- **Data:** The SIMLESA baseline data sets have the potential for in-depth analysis to support development of various interventions and extract Sex and Gender Disaggregated Data.

The case studies document the good practices and lessons learnt during the SIMLESA programme, which SIMLESA or any other programme could consider in future programmes or during programme review. While many of these lessons are important at the programme design stage, several are applicable even at the implementation and up-scaling stages.

1

Background

The overview of the SIMLESA programme, including its processes and guidelines have been provided together with some definitions relevant to the study. The theory and conceptual framework of Gender Mainstreaming in SIMLESA programme has been narrated as well as the processes in generating the case studies.

Energy-efficient technologies will eliminate time burdens of women and girls who shoulder the bulk of household responsibilities such as cooking.



1.1 SIMLESA Programme

The Sustainable Intensification of Maize-Legume cropping systems for food security in Eastern and Southern Africa (SIMLESA) is a multi-institutional and multi-stakeholder regional collaborative research project led by the International Maize and Wheat Improvement Centre (CIMMYT), with donor support from the Australian Centre for International Agricultural Research (ACIAR). The SIMLESA programme is implemented in Ethiopia, Kenya, Malawi, Mozambique, Tanzania and Australia and aims at increasing farm-level food security and productivity, in the context of climate risk and change.

The overall objective of the programme is to sustainably increase the productivity of selected maize-legume systems in eastern and southern Africa by 30% from the 2009 average for each target country by the year 2020 and, at the same time, reduce seasonal down-side risks by 30%. The programme is guided by five specific objectives, which are as follows:

- **Objective 1:** To characterize maize-legume production and input and output value chain systems and impact pathways, and identify broad systemic constraints and options for field testing.
- **Objective 2:** To test and develop productive, resilient and sustainable smallholder maize-legume cropping systems and innovation systems for local scaling out.
- **Objective 3:** To increase the range of maize and legume varieties available for smallholders through accelerated breeding, regional testing and release, and availability of performance data.
- **Objective 4:** To support the development of regional and local innovations systems.
- **Objective 5:** Capacity building to increase the efficiency of agricultural research today and in the future.

1.1.1 The Association for Strengthening Agricultural Research in Eastern and Central Africa

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a not-for-profit sub-regional organization, which has been in existence since 1994. ASARECA covers 11 countries in the region: Burundi, Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, South Sudan, Sudan, Tanzania, and Uganda.

The formation of ASARECA was spurred by the need to address the challenges and opportunities in order to improve agriculture in the sub-region and the overriding need

The SIMLESA programme is implemented in Ethiopia, Kenya, Malawi, Mozambique, Tanzania and Australia and aims at increasing farm-level food security and productivity

to promote its common welfare through collective action. The intention was that the benefit of cost-effective utilization of the available resources to produce technologies, knowledge and innovation systems, which would form sub-regional public goods that could be shared freely by all member countries, and the formation of an intergovernmental association for agricultural research, extension and agricultural training and education in the sub-region, would complement the activities of the national, pan-African and international research institutions in delivering more responsive services to stakeholders in the sub-region.

ASARECA is one of the collaborating partners in the SIMLESA programme

ASARECA exists to enhance utilization of agricultural research for development innovations in eastern and central Africa, by developing policies and programmes aimed at deepening co-operation in agricultural research and policy among its member countries for the mutual benefit of all the stakeholders in the agricultural sector.

ASARECA is one of the collaborating partners in the SIMLESA programme. ASARECA is tasked with the implementation of activities geared at supporting the development of sustainable regional and local innovation systems as outlined in its program proposal (SIMLESA/ASARECA, 2010). The proposal lists three outputs:

- (1) mainstreaming of gender sensitivity in research activities in the five primary program countries.
- (2) monitoring and evaluation.
- (3) knowledge and technology transfers. This assignment is in relation to activities on gender mainstreaming in the SIMLESA programme.

1.1.2 Gender mainstreaming in the SIMLESA Programme

Gender Mainstreaming in the SIMLESA programme is implemented under objective 4, which explains the role of ASARECA in the implementation of SIMLESA activities and details the outputs on Gender mainstreaming as follows:

- ASARECA mainly to provide capacity building to the participating countries through training of local trainers and other staff of National Agricultural Research Systems (NARS) on gender mainstreaming and gender analysis.
- ASARECA to provide inputs on the instrument for socioeconomic surveys to gather information on the role of gender in maize-legume systems. Such socioeconomic farm-level gender disaggregated data to be collected by the countries and CIMMYT. ASARECA to backstop in analysis of this data, with a view to understand the role of gender in maize and legume systems.
- ASARECA to produce a policy brief on strategies to enhance the impact of maize-legume technologies for empowering women.

The activities under Gender Mainstreaming are detailed as follows:

- Incorporation of gender aspects in common monitoring and evaluation (M&E) systems.

The aim of the workshop was to strengthen gender mainstreaming skills in agricultural research systems, and to enable the workshop participants to acquire knowledge, tools and skills in gender mainstreaming

- Gender specialist works with and observes programme activities in a sample of local innovation systems, to assess gender sensitivity in the programme.
- Gender specialist trains eastern and southern African NARS scientists in gender issues, based on ASARECA, Participatory Research & Gender Analysis (PRGA) and best practice experiences.
- Reporting of gender outcomes in national research workshops.

The process of gender mainstreaming in the SIMLESA programme has been approached from two major aspects: (1) building the capability of the NARS scientists in the participating countries, and (2) providing technical inputs to various processes of the programme.

Under capacity building, three training workshops were conducted. The first workshop was held during 22 to 25 Feb 2011 in Arusha, Tanzania, for participants from NARS implementing the SIMLESA programme. The aim of the workshop was to strengthen gender mainstreaming skills in agricultural research systems, and to enable the workshop participants to acquire knowledge, tools and skills in gender mainstreaming.

The second workshop took place in Morogoro, Tanzania (26-29 July 2011) under the theme “Towards building capacity for data collection”. The main objective of the workshop was to enable participants acquire knowledge, tools and skills in generation and use of Gender Disaggregated Data (GDD). Participants had an opportunity for hands-on training in the field, and they also developed the country-level gender mainstreaming action plans. At the end of the workshop, the participants proposed the documentation of case studies on gender mainstreaming in the SIMLESA programme. This proposal shaped the nature of the third workshop.

The third workshop, whose theme was “Harmonizing gender mainstreaming action plans and development of case studies and lessons learned”, was held during 23-27 July 2012 in Addis Ababa, Ethiopia. The broad objective of the training was to compile case studies on the gender mainstreaming activities and harmonise gender mainstreaming action plans from the five SIMLESA participating countries. More specifically, the workshop was intended to familiarize the participants with the process of collecting gender mainstreaming case studies, as well as to create a deeper understanding on GDD analysis and interpretation through case studies.

1.1.3 Objectives of the assignment

The main objective of the assignment was to compile case studies of good practices in gender mainstreaming activities from the five SIMLESA participating countries. In undertaking the assignment, the following tasks were accomplished.

- Case studies were collected by the SIMLESA programme staff, and the potential for generation of gender responsive case studies was determined.
- Field visits were conducted in five countries (Ethiopia, Kenya, Malawi, Mozambique, and Tanzania) to collect additional gender data/information on the case studies, to ensure that they are comprehensive in demonstrating the gender concerns/issues.
- Five case studies for each country were compiled, highlighting the change/impact of the gender mainstreaming efforts of the SIMLESA programme, which would be ready for publishing. The case studies contain concise descriptions of the persons/institutions involved and their locations, and photographs were obtained where possible.
- The draft case studies were validated by a core group of stakeholders, who reviewed the draft and offered their comments.
- The comments/proposals from the stakeholders were incorporated into the final draft.

1.2 Definitions

1.2.1 Good practices

For purposes pertaining to the activities of the SIMLESA programme, the best definition of a good practice was derived from the FAO glossary, which is as follows:

“Good practices- Any collection of specific methods that produce results that are in harmony with the values of the proponents of those practices. In agriculture, it applies to available knowledge in addressing environmental, economic and social sustainability for on-farm production and post-production processes resulting in safe and healthy food and non-food agricultural products”. http://www.fao.org/ag/wfe2005/glossary_en.htm

1.2.2 Case study

A case study analyzes an organization and describes how the organization benefits by implementing the preferred innovation. It details the organization’s objectives, technical and administrative problems or challenges, the innovation and how it benefited the intended beneficiaries. In the case of the SIMLESA programme, the compilation of case studies will inform other stakeholders in their own development of gender mainstreaming efforts. This could encourage other research entities in the region to embrace gender mainstreaming, by providing them a means to identify with the case study client. Additionally, the case studies would inform potential researchers of the benefits of gender mainstreaming through demonstrated activities, thus positioning the SIMLESA programme partners as knowledgeable about the challenges of the farmers by giving a background on the available solutions. Considering the existing constraints in overcoming initial objections to gender mainstreaming, the case studies can motivate

Good practices-
Any collection of specific
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those practices

potential clients to investigate further. These case studies can be made available to partners, interested practitioners, experts and other stakeholders, online or offline.

1.3 Gender mainstreaming: Theory and Conceptual Framework

1.3.1 Gender mainstreaming

According to UN WOMEN, Gender Mainstreaming is a globally accepted strategy for promoting gender equality. Mainstreaming is not an end in itself but a strategy, an approach, a means to achieve the goal of gender equality. Mainstreaming involves ensuring that gender perspectives and attention are geared to the goal of gender equality and are central to all activities, such as policy development, research, advocacy/dialogue, legislation, resource allocation, and planning, implementation and monitoring of programmes and projects.

In compiling the case studies of good practices in Gender Mainstreaming in the SIMLESA programme, the activities that promote gender equality were identified and explored as learning points. The activities included the phases of policy development, resource allocation, and planning, implementation and monitoring of the programme.

1.3.2 Gender and Development Conceptual Framework

The SIMLESA programme document categorises the anticipated impact in three broad areas, namely scientific, capacity building, and community. The impacts under the community are further broken down into economic, social and environmental impacts. In as much as gender plays an important role in the achievement of all these impacts, it is the social impacts that impact directly on the well-being of the households, thus best illustrating the tangible benefits of gender mainstreaming efforts in the SIMLESA programme.

The Gender and Development (GAD) approach focuses on both men and women of all categories in the community, their differences, inequalities, and similarities, and tries to provide solutions for the creation of a more equitable society. It focuses more on the social, economic and political relations between men and women and tries to address the inequities that may exist, in order to transform these relations into more equitable ones and thus improve access to development opportunities provided by the projects.

In the collection of these case studies, there was an attempt at establishing the level of gender equality by seeking responses to the following questions: Who has access to what and who controls resources? Who does what, when and where? And who benefits from what and how?

1.3.3 Agriculture as a way of life¹

Many scholars appreciate the fact that the way of life of the smallholder and agriculture are very interlinked. Smallholders consume what they produce and the relationship between the seasons and activities in the household are closely linked (Manyire 2011). The norms of the community determine the kind of agriculture; for instance, if the land is communally

1. Much of the discussion in this section and the next is based on Manyire (2011), to whom much gratitude is hereby acknowledged.

Reliance on family labour was a very common finding among the farmers participating in the SIMLESA programme in all the 5 countries covered

owned it may be allocated by the clan heads. In smallholder agricultural practices, knowledge is passed on through informal means; skills of agriculture are also passed on informally, together with the other life skills necessary for propagation of lineage. Gender thus becomes interlinked with agriculture, and socialisation is passed on subconsciously, without thinking.

Rural life has its own values, which include being fairly self-sufficient. Even in marriage, the criteria for eligibility of a suitor often includes food sufficiency; hence the human values are all intertwined and these depend on the composition of the household. Credence was given to this argument when several farmers confessed that farming is their only way of life, and they have been farming from as far back as they can recall because they used to go to the farm with their parents.

The different norms and cultures will influence the division of labour in the household. Different roles are assigned responsibilities and rights. For instance, to cultivate you need land. The responsibilities also determine constraints; for instance, children must go to school, so time becomes a constraint if you are relying on child labour. Reliance on family labour was a very common finding among the farmers participating in the SIMLESA programme in all the 5 countries covered.

The determination of entitlements of males and females in the household and beyond influence and determine the nature of human values in rural settings in general, and within agricultural practices in particular. Men are expected to inherit, since they propagate lineage. On the contrary, women are expected to lead a very comfortable life when they are dependent, first as daughters, then as wives and finally as mothers, especially as mothers of boys. Therefore, understanding the relationships between human values and agriculture is of critical importance in agricultural research: it brings out the importance of gender in the social, cultural and economic organization of smallholder rural farming practices. It was observed that in the Ngoni and Chewa communities in parts of Malawi and Mozambique, which practiced matrilineal culture, where women inherited land and men matrilocated, the women had more authority in decisions taken on the fields and children take after the mother.

1.3.4 Agriculture, human values and gender in agricultural research

In the analysis of the framework for conceptualising the interactions between agriculture, human values and gender in agricultural research, it is evident that gender interacts with other systems to produce different sets of opportunities and constraints, which influence the abilities of different categories of men and women and boys and girls to participate in agricultural production, consumption and exchange. By virtue of being born male or

Being gender sensitive means that women must be reached and this takes more time, finances, and human resources.

female, one may have the access to assets like land, labour, or agronomic knowledge. Women in most societies are not expected to interact with men, especially strangers, so agronomic information will be given to men, especially if extension officers are men. Also men are more mobile, so they are able to attend meetings.

Even if women are knowledgeable, there are other gender constraints within the household conferred by the reproductive roles. Often

women lack the confidence to seek out knowledge, technology, etc. It takes more resources to reach women. Being gender sensitive means that women must be reached and this takes more time, finances, and human resources. Women, however, are not a homogenous group. In female-headed households, women have more power and entitlements than in male-headed households. The reasons that led to the situation of female-headed households will also determine the entitlement. A divorced woman would most likely lose all her entitlements, while a widow may maintain hers. Some households have multiple livelihoods (government worker, teacher, nurse) and patriarchy within them is less distinct than where the livelihoods are limited.

These case studies amplify the interactions of the conceptual framework and many of them show the differences among individuals of the same collection, such as women, housewives, female-headed households or even male-headed households.

1.3.5 Role of women in agriculture

Agricultural production in Sub-Saharan Africa is a predominantly small-scale farming system, with more than 50% of the agricultural activity performed by women, producing about 60-70% of the food in this region. This system of production is characterised by distinct gender division of labour, based on patriarchal norms that ascribe roles of around the household to the woman and of cash income to the man. Stereotyping typical of this categorisation has greatly limited women's access to, and control of, vital production assets, such as land, credit, and extension services. On the other hand, political, economic, technological and other strategic inventions have imposed changes in gender roles, with women increasingly taking over roles previously assigned to men, but without an increase in resources for effective production. Even when men leave their rural homes to seek paid employment in towns or a woman loses a spouse, access to, and control of, resources remains principally in the hands of the male relatives.

According to FAO (2011), if women farmers across the developing world had the same access to labour, fertilizer, extension services, and seeds as male farmers, yields would increase as much as 20-30 percent per household, and reduce hunger for 100-150 million people. Equal access to production resources for men and women would also raise total agricultural output in developing countries by 2.5-4 percent, contributing to food security and economic growth. Further research in Kenya showed that if women were to apply the

same volume and quality of inputs as used by men, women's yields could increase by 10.5% (Moock 1976) and if men's average input levels were transferred to women maize farmers, yields would increase by 9% (Saito et al. 1994). These findings underscore the magnitude of the necessity to consider gender in the SIMLESA programme, if the overall aim is to increase food security and incomes at household and regional levels, and if economic development in eastern and southern Africa through improved productivity from more resilient and sustainable maize-based farming systems is to be obtained.

Addressing the gender gaps in the SIMLESA programme would thus accrue considerable benefits to the target households in the region

In a household, women are responsible for planning, providing and preparing of food. In a majority of the homes, women determine which food crops will be grown in which home garden, while men concentrate on the cash crops. Gender division of labour has bestowed on women the roles of weeding and harvesting, making them the lead gardeners. Depending on the availability of either family or paid labour, women determine which farms get weeded or harvested first. Selection of planting materials is primarily a role of women, who in most cases preserve seed from the previous harvest. Women are more conversant with the productivity of what seed on which land, a skill acquired through years of experience and knowledge, passed down from mother to daughter. It is thus important that women are targeted for training as well as evaluations, because they possess information on the management of finer aspects in subsistence agriculture.

The gender gap that exists in access to, and control of, assets, inputs and services, as well as benefits obtained in agricultural production, does not only undermine the welfare of women and the households but also impacts on the effectiveness of agricultural innovations and the growth of the agricultural sector and economy at large. Addressing the gender gaps in the SIMLESA programme would thus accrue considerable benefits to the target households in the region, which would then spur economic development in eastern and southern Africa.

1.4 SIMLESA processes and guidelines

SIMLESA has from very early on anticipated that Gender and M&E specialists within the NARS would participate in programme activities in a sample of the programme's target communities, and collect data on socioeconomic indicators and technological and socioeconomic advances from all communities and from the germplasm development activities conducted under the programme. At the same time, evidence of gender bias in the programme activities would be assessed and opportunities to overcome these and increase the gender balance in all aspects of the programme analyzed and discussed. Thus a need was identified to align the responsibilities of these specialists within the NARS with those of the programme, with a view to ensure targeting of knowledge and skills development to directly benefit the programme.

1.4.1 Gender mainstreaming information flow

The SIMLESA programme is a new model for providing funding to NARS. The technical backstopping is provided by CIMMYT through objective coordinators. The programme has four Objective Coordinators, one each for Objectives 1 & 3 and 2 for Objective 2 (one for Southern Africa, taking care of Malawi and Mozambique, and the other for Eastern Africa, tending to Ethiopia, Kenya and Tanzania). The programme activities in each country are a responsibility of the NARS, who appoint a National Coordinator as the overall supervisor. Working with the National Coordinator are Assistant Objective Leaders for each objective, including objective 4, which covers gender mainstreaming. Each programme site has extension staff to assist the Objective Leaders in implementing activities. These extension staff interface more regularly with the community and are likely to be most conversant with the culture, which makes them the best suited to identify key gender issues in the community.

The structure of information flow in SIMLESA in relation to gender mainstreaming is illustrated in Figure 1.

Although the bulk of the SIMLESA activities are under objective 2, in some countries, there is very little interface of this objective with the gender mainstreaming activities. According to the SIMLESA, 2010. Final program of the SIMLESA program proposal under objective 2 output; *Functioning local innovation systems which engage 5,000 farmers each in at least ten maize-legume systems for local scaling out*, gender mainstreaming (Output 4.2) is supposed to support the local innovation systems. Since each NARS decides the activities undertaken, including selection of the crops and budgetary allocation for activities, the degree of gender mainstreaming in the SIMLESA country projects can only be determined correctly at the country level.

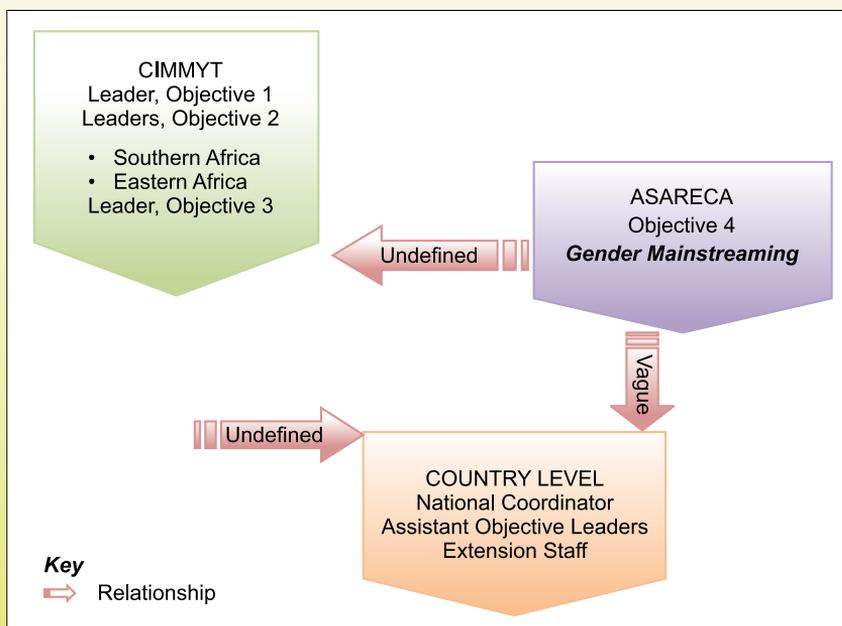


Figure 1. Structure of information flow on gender mainstreaming in the SIMLESA programme.

From the interactions with the national staff, it was difficult to extract a clear line of information flow on gender mainstreaming in the programme. In some countries, the gender focal persons were not closely involved in the programme, and yet the Assistant Objective Leaders did not have the skills to undertake gender mainstreaming. There is a need for the programme to clearly define the flow of information on gender mainstreaming and also ensure that the Assistant Objectives Leaders have the requisite skills to ensure gender mainstreaming in the programme.

1.4.2 Farmer selection for implementing SIMLESA and out-scaling demonstrations²

SIMLESA has a set of guidelines for selection of farmers participating in its trials. These guidelines underscore the need to ensure that host farmers are carefully selected to minimise programme failures based on this factor. The same guidelines also describe the process of introducing the project in the selected communities.

The qualities suggested for selection of host farmers for the programme-supported trials are shown in Figure 2, while guidelines for running community awareness meetings are outlined in Figure 3.

It is important to note that female farmers who could meet these criteria have been disadvantaged by years of exclusion from development initiatives, so that qualities like innovativeness, receptiveness to other community members, openness and/or willingness to learn may be difficult to assess compared to their male counterparts, who are more visible.

Desirable qualities in participating farmers

- Accessibility (farmers, project staff, and researchers): Is there a road to the village?
- Innovativeness: farmers who are willing to try out new ideas in a dedicated manner.
- Receptivity to other community members: Farmers who host the trials must be willing to accept visits by other farmers from the neighbourhood to the field to monitor and observe effects of the tested options.
- Commitment to hosting the trial for at least 3 years: The host sites will be under these trials for at least 3 years, without changing the field.
- Openness: farmers who are critical and open to suggestions and criticism from others.
- Representativeness (soils, agriculture activities, culture).
- Honesty
- Friendliness
- Willingness to learn new things

Figure 2. Desirable qualities for selecting host farmers for SIMLESA-supported trials.

2. This information was obtained from Dr. Isaiah Nyagumbo – Leader Objective2 – Southern Africa.

Running community awareness meetings

Participatory techniques should be used to introduce the project to the communities selected. The project should not impose itself on the communities without their buy in. Ideally the following steps should be used to achieve this:

(a) Problem /Situation Analysis and Envisioning

Analyse the situation and problems faced by the farmers in their activities by asking in a plenary session, for example, questions such as the following:

- i. What are the major farming activities in the area?
- ii. What have been the key crop production constraints in your area in the last 10 years?
- iii. What strategies have you used to address these constraints, and how effective have these been?
- iv. Address the question “If you died today and came back after 100 years, what changes would you like to see having taken place in your area?”
- v. Brainstorm and summarize identified solutions and visualize these on flip charts.
- vi. Briefly introduce the Concept of Conservation Agriculture and link it to identified problems and solutions:
 1. Reduced soil disturbance: Serves to reduce soil degradation and hence improve soil organic matter, reduces labour for land preparation.
 2. Provision of soil cover: reduces loss of water by evaporation, hence improved moisture conservation.
 3. Use of crop rotations: rotations of crops, cereals and legumes, helps to ensure pests and diseases are suppressed and also helps to maintain soil fertility

(b) Introduce the proposed protocols and emphasize that we all need to learn how this will work in this environment.

Figure 3. Guidelines for running community awareness meetings under the SIMLESA programme.

In a majority of cultures in sub-Saharan Africa, women are not expected to attend, and if they attend, they are not expected to speak at public meetings. Gender constraints should be recognised and addressed in these guidelines, right from the invitation of the community to problem identification. Men, women and youth often have different needs and priorities in agricultural production, and yet the voices of the latter two are very often subdued by the men at a plenary session. Use of gender-sensitive participatory methods and gender analysis tools should be applied in this process, to improve problem identification.

The programme aimed at having 5 new communities per district, with about 200 households per community, and one or two learning centres, with several options in Conservation Agriculture (CA) demonstrated to farmers while implementing the out-scaling demonstrations. Herein lay a great opportunity for SIMLESA to ensure that various categories of people in

the community were involved in the programme. Through identification of the different interests of men, women, youth, the programme was able to have multiple targets for the CA options that were acceptable in the community, without necessarily undermining the objectives or quality of the programme.

1.5 Methodology

The study employed a number of techniques in collection of the case studies. The selection of method used was influenced by the type of information to be collected.

1.5.1 Literature review:

A number of documents were reviewed to articulate gender issues in agriculture in general and agricultural research in particular. A detailed study of the SIMLESA Programme document and the annexes, as well as of reports to the programme, was completed and the content analysed for gender sensitivity.

1.5.2 Interviews

Interviews were conducted with individual farmer households to identify gender issues relevant to the programme. In households that had both spouses available, the man and woman were interviewed separately, to capture responses of both gender categories. Interviews were also held with various staff involved with the SIMLESA programme, such as the extension staff and Assistant Objective Leaders, to share their views and experiences of the programme. Through these discussions, some case studies were generated.

1.5.3 Discussions

Extensive discussions were held with the SIMLESA staff to identify possible case studies for further development. Discussions were also held with farmer groups at the SIMLESA programme sites. The discussions with farmers included separate Focus Group Discussions for various categories of farmers in the community.

1.5.4 Developing case studies

The initial plan of countries generating case studies that would be reviewed and compiled was not very successful. The identification and generation of many case studies was thus undertaken on the field visits. The Case Studies were identified from discussions with SIMLESA staff and the participating communities. In-depth interviews were then conducted with the identified households/farmers for the details of the case duties. The SIMLESA staff were involved in reviewing the case studies before the analysis was done. This process consumed more time than what was anticipated and planned.

1.5.5 Site visits

Various farmer trial plots were visited to witness the technology implemented, and also to verify some of the statements in the interviews. Documentation in the form of photographs was taken during these visits.



2

Case studies

The case studies selected from the experiences in the SIMLESA programme are presented by country in the sections that follow, with a brief introduction on how the programme came about in each country. The countries covered, in alphabetical order, are Ethiopia, Kenya, Malawi, Mozambique, and Tanzania.

Left: Conservation Agriculture (CA) technologies have the benefit of saving time and labour at the same time increasing agricultural productivity and household food and nutrition security.

Below: One of the Innovation Platform members from Manica Farmers Union (UCAMA) Mozambique, appreciates the household visioning process that has steered the family into working together both in the field and at home so as to reduce the labour burden on one gender.



2.1 Ethiopia

The SIMLESA programme has been implemented in Ethiopia since March 2010, with the aim of improving the productivity and management of maize and legume production in the project sites by improving soil fertility, improving land productivity and ensuring benefit sharing among the community members at household level. Gender issues were taken as a component of the intervention, as it related to livestock feeding challenges and the cultivation of beans, which are generally seen mainly as women's roles.

2.1.1 Encouraging participation of female farmers

When the SIMLESA programme started, the first two years focused on participatory technology evaluation and validation, so as to identify the best technologies for further scaling up. The selection of farmers to participate in the programme was done in consultation with the District Bureau of Agriculture and Administration (DBAA), which has lists of all the farmers in the locality. The SIMLESA project staff explained the objectives of the project and discussed them with the district officials, who were then asked to propose names of farmers who would be willing to host the project. In this way, the host farmers were identified.

The community members were invited through the Community Development workers and Administration officers. Although SIMLESA staff usually proposed inclusion of female and youth farmers in the invitations, this was often not adhered to. In many cases, it was community development workers who conveyed messages or information at meetings. This method of information dissemination did not favour women, because most participants at such meetings are men. Due to time and resource constraints, the Community Development workers are often not able to traverse across a village to pass information to women, who in most cases work around the homesteads.

Realising this constraint, the programme staff tried to find ways of getting information to, and generating interest among, female farmers to participate and adopt SIMLESA technologies. On the 30 August 2012, a mini field day was organised in Badowacho district by the Hawasa national maize project, which targeted female-headed households/farmers. The field day was held on Fatima's field, a female farmer participating in the exploratory trial undertaking

When the SIMLESA programme started, the first two years focused on participatory technology evaluation and validation, so as to identify the best technologies for further scaling up

conservation agriculture. The women discussed the new technology of conservation agriculture, among other issues. The women expressed their views on the importance of this technology in saving time and labour, as well as their expectation of higher yields from it and its contribution to sustainable production.

The project is now undertaking the scaling out of this technology and information dissemination, which



The host farmer, herself a woman, and extension workers explain the trial to other women farmers on the field day.

offers a good opportunity for consideration of gender concerns. In Participatory Variety Evaluations (PVE), for example, there is equal representation of men and women among the participants. This participation is purposefully done by ensuring that the invitation is sent to both the men and women specifically. The preferences shown by the men and women in these evaluations differ. While men tend to opt for trials on high yield

Good Practice

In order to promote the participation of women in the programme activities, it is important to design particular strategies to involve them. These may include specific ways to get information to women, such as repeated visits to their homes to explain the programme to them or organizing meetings in places convenient for women to attend.

Lessons Learnt:

When women of Badowacho district were targeted and invited to a field day organised on another woman's farm, they fully participated and contributed in the process. Men and women have different reasons for participating in research. Women are more interested in characteristics, such as nutritional value and taste, because they have a primary responsibility for ensuring household food security. Men, on the other hand, may be more interested in characteristics that promote market value. These reinforce the reality that decisions are taken in accordance to the traditional gender roles assigned by society.

and drought resistance, women choose earlymaturing varieties and prefer attention to taste characteristics. At one participatory maize variety evaluation held in Dehra district, attended by 15 men and 15 women, it was mentioned that one of the eight varieties in the Participatory Varietal Selection (PVS) trial was a quality protein variety, especially suited for children. During the evaluation, the women were very keen on the observations and asked facilitators to show them the variety with the quality protein. At the end of the session, most women were volunteering for this particular variety.

2.1.2 Changing gender roles – Kabeto Wadiro

“My name is Kabeto Wadiro and I am 37 years old. I attended school up to 10th grade and then stopped. I am married and have three children, two boys and one girl. My wife’s name is Sare Dolo and she is 22 years old. We make our living by producing maize and haricot beans. We also keep livestock, mainly cattle, to support the family. Our main source of food is the crops we grow, but the shortage of rain and decreasing land area is affecting our food availability. The people are now many and we have to share the land, so there is land fragmentation. The prices of the produce are very low, so you have to sell a lot more to get money for other expenses, and this leaves less food for household consumption.

The roles of men and women in the homes have changed. In the past, women used to spend a lot of time travelling long distances to fetch water, but now there is a water source that was built in the neighbourhood, which has eased the problem. The problem of women milling flour using the traditional grinding stones, which was time and energy consuming, has been resolved. We are lucky, because now a number of flour mills have been set up in the area. The women spend less time on these activities and instead engage in some petty trade, which generates some income for the household. Now that the women can bring in some



Fisseha Gizehe (at right), SIMLESA Gender focal point, interviewing Kabeto, farmer (left).

money, it gives motivation to all family members, including me, to participate in activities like fetching water using donkeys, food preparation, shopping, housekeeping, family health care, collecting and preparing fuel wood, and caring for the children.

My participation in the SIMLESA programme began about two years ago, when I had a detailed discussion with the Development Agent (DA) of our area. Later on, the DA came to our community with a team of researchers,

to talk about the same programme. I was then given an opportunity to participate in a training session organized by Melkassa Agricultural Research Centre (MARC).

At the training, I learnt the importance of zero tillage/minimum tillage, intercropping, crop rotation, and mulching, in relation to shortage of rain, soil infertility and climate change. I then realized that these were the current problems that we were facing in our community. I realized that by intercropping I could grow two different crops on the same plot of land in one season, without ploughing the farm and having to weed. I got a lot of knowledge and skills from this training because I was given the opportunity to practice.

After the researcher's demonstration on a 10 x 20 m plot of land, I actually started to use the technology on a larger piece of land. During the demonstration, I tried very much to understand the practice in my own way and the advantages to me as a farmer, so that I could then apply it on my piece of land. The following year, I decided to expand the practice to 1 hectare of land. I hired some labour to plough and, with my wife, we sowed maize with 75 cm between rows and 25 cm between plants in a straight line, using a rope. I dug the holes, while my wife threw in the seeds and covered them with soil after me. After 15 days, we sowed haricot beans between the rows of maize.

With this practice, we are able to use the few oxen and family labour to farm and yet the production per hectare has improved. Through this process, I have been able to increase my production from 2400 kg to about 4000 kg of Melkasa-2 variety of maize per hectare, on the same piece of land. For the Nasir variety of haricot bean, I used to harvest 1200 to 1600 kg per hectare of land, but after the improved practice we are able to produce 2000 to 2400 kg of haricot bean per hectare. My family income has increased, because I have surplus produce which I sell. The other farmers in the area have now developed interest in trying out the practice, because of the increased yields and reduced labour on my farm.

Not only has the labour requirement reduced, but so also the time spent on farming activities. I now have time to do some other work. I know that women have a lot of work, because after working on the farm they go back home and cook food, as well as look after the children. With the SIMLESA system of farming, I am able to go home and help my wife with some household chores. I participate in work at home that is based on mutual

At the training, I learnt the importance of zero tillage/minimum tillage, intercropping, crop rotation, and mulching, in relation to shortage of rain, soil infertility and climate change

understanding of the family members. I decide the important issues, like using land and saving of income, but I discuss with my wife on the other issues of home management. I learnt to do this from the radio and the village administration.”

Good Practice:

As Kabeto appreciated the contribution his wife made to household income, he started helping with tasks that were hitherto considered women’s roles, such as fetching water and bathing children.

Lesson Learnt:

The increase in household income and changes in technology influenced changes in traditional gender roles.

2.1.3 SIMLESA and livestock-based livelihoods – The Gerbi Community

The Gerbi community is located in the Gerbi-wudina-boren Kebele administration, Adamitulu Judo Kombolcha district, Eastern Showa Rural Zone, in the Oromiya Region of Ethiopia. The current Gerbi community moved into this village as a result of a resettlement programme caused by the expansion of commercial state farms during the military regime in the 1980s. By then, a significant part of the land was grazing land, covered with trees and forest. Livestock keeping has been traditionally the major source of livelihood here,



Discussion with Gerbi Community-SIMLESA Programme site

but over time crop farming has become a significant practice in the area. According to the farmers in this community, crops were cultivated on small plots of land, but the productivity was high and the harvest adequate to satisfy the family demands. Presently, although larger areas are cultivated, the crop yields are lower. This is attributed to soil fatigue, owing to depletion of the soils nutrients and rain shortage. With increases in human population in the village, there has been a tendency for households to expand cultivated areas as they strive to provide adequate food for the family. The area for animal grazing has progressively shrunk, resulting in reducing the number of livestock kept per household.



Animals feeding on crop residue from the farm.

The community acknowledges CA as the new method of crop production that reduces the frequency of ploughing. The new practice reduces production costs, especially the cost of land preparation; it is also very suitable for female and elderly farmers, since it demands less labour. This practice also reduces the weed population and the frequency of weeding. The farmers understand that leaving plant residue on the farmland improves soil fertility and that soils should not be exploited without replenishment. They have observed the better performance of the crop on plots under CA, where crop residue is retained in the field, as compared to the existing practices.

Although the community appreciates that the practice is good, they have some problems with it. Culturally, livestock keeping is a very important aspect of their lives, especially to women who derive some income from sale of milk and ghee (processed and clarified butter). Traditionally, after the harvest, when the pastures have dried up, animals are fed on the crop residues. CA requires that the entire crop residue be left on the farm, which creates a problem of animal feed shortage. This is a burden primarily for women and children, since feeding of animals is their responsibility. To overcome this problem, the women suggested that some or part (but not all) of the residue be left on the farm, and that they then prepare compost and apply it to the field.

Good Practice

As the women in this community showed, using part of the crop residue for preparing compost and part of the residue as livestock feed improves soil fertility and provides fodder for the animals.

Lesson Learnt

Conservation Agriculture reduces labour requirements on the field, but it also deprives household of animal feed. This has increased the time and distance that women spend on searching for animal feed, since feeding animals is their responsibility. Thus, understanding the distribution of roles and benefits in the household informs gender-aware planning that takes into account the differential impact of the programme on women, men, youth and children.

2.1.4 Family labour – The household of Mekuria Weshi Bone

Mekuria Weshi Bone is a 49-year-old man. He was married to three women, but one passed on. Currently he has two wives and 16 children (8 girls and 8 boys). One of his children is married, and another ekes a living as a domestic worker in an Arab country. Mekuria is a former soldier of the Derg military, who went to school upto 3rd grade. He owns 4 hectares of land, which he has divided equally among the two families (2 hectares each). Each wife cultivates her land to get food for the family. Mekuria uses communal land to graze his animals. Previously Mekuria owned over 20 animals, but these have been reduced to two oxen and three cows.



Derese Teshome (left) of the Ethiopian Institute of Agricultural Research interviewing farmer Mekuria (right).

One day, as Mekuria worked on his land, he was approached by the local extension staff and asked if he would be willing to host demonstrations in collaboration with Melkasa Research Centre. The demonstrations were about new practices that included inter-cropping of beans with maize, planting in rows, minimum tillage, chemical application for weed control, application of recommended fertilizers and mulching. Although Mekuria had been planting haricot beans before the SIMLESA project was introduced, there was a difference in the methods used. Prior to the SIMLESA programme, he would till the land up to 3 or



Mekuria family working together



Bilcham Kasfa, Mekuria's first wife



Hawine Kuto, Mekuria's second wife

more times before planting and thereafter weed at least twice. He would till the land alone using oxen, and his wives and children would join him in the weeding.

Bilcham Kasfa, Mekuria's elder wife, was informed about the project by her husband, who had been contacted by the officials. The SIMLESA demonstration plot is located on Kasfa's land because it is more accessible. She works together with the co-wife, and they both attend SIMLESA activities. (Polygamy is a common practice in this area).

Hawine Kuto, the second wife, has her own piece of land – 2 ha – but she helps on the demonstration plot. These days, land is a common property for both husband and wife. In the past, though, land would be acquired through allocation, inheritance or lease/rent. There has, however, been no land distribution since the 1990s.

Kuto has also participated in the SIMLESA activities. She has attended 2 field days and visited other model farmers, where she observed that crops grown on unploughed land were doing well. With the experience she is getting through participation on Kasfa's plot, she intends to implement the acquired knowledge on her piece of land in the next planting season.

Kuto appreciates the innovation of intercropping, as the family is able to harvest two crops (maize and haricot beans) from the same land.

Good Practice:

The major source of labour in the Mekuria household is family labour. Involving both wives in the SIMLESA activities ensures that the both women can practice the CA technology on their separate pieces of land and reap the benefits to sustain the large family.

Lesson Learnt:

Involvement of **all** members of the household in the SIMLESA activities enables the programme to target a larger number of people who acquire the skills, thus increasing the opportunities for scaling out.

2.1.5 Conservation agriculture: Benefits to women and youth involvement



Fate in her plot with crop residues removed while she was sick



Fate in her trial plot with crop residue

Women:

Fate Hirpo Figa is a 40-year-old widow, who lives on 3.5 ha piece of land. She has an all male family of 10, and she is the only female. Fate practices minimum tillage and hand weeding. She is an exemplary farmer, whose farm has in the past been selected to host field days and experience learning activities, because she endeavours to leave crop residue in her garden. Her case epitomises the benefits and challenges of women in adopting Conservation Agriculture.

The technologies promoted by SIMLESA have benefited women, especially those that did not have oxen and those with shortage of labour. These women were often unable to complete the preparation of their gardens to plant as soon as the rains started, and yet the rains are very short, which further complicates the problem. With zero tillage, the women are able to plant in time to benefit from even short rainfall periods.

The biggest challenge, though, is the free range grazing of animals that stray into the gardens and eat up the crop residues. Apart from the free roaming animals, stover (maize crop residue, consisting of dried stalks and leaves) is an important source of fuel for cooking food and also feeding the animals.

The farmer has learnt to minimize the removal of stover to retain moisture on the farm plots. She has experienced that the practice works and is ready to continuously apply some of the technologies on her land. The community has adopted the planting of beans in maize rows, which was new to them. The yields are so encouraging that they have established a bean production and marketing association in the area.



Fate in front of heaps of crop residue for feeding animals.



Derese Teshome (second from right) of the Ethiopian Institute of Agricultural Research (EIAR) facilitating Male Youth Focus Group Discussion

Youth:

Majority of the youth in the community are inactive participants in the programme, who need to be advised on how to improve their contribution to the farming activities in the household. The male youth are given small plots of land, usually about $\frac{1}{4}$ ha, locally known as 'Olcha', by their families to cultivate. The produce from this land is supposed to cater for the youth's personal needs, such as education and asset accumulation. The female youth, on the other hand, work on the family land with their parents. At family level, Fate hires labour to work on her land since three of her boys work on their own land and others are in school.

Majority of participants in the youth focus group had attained education up to the 10th grade level, but had no experience with agricultural research centres nor had they been invited to any training. The few youth who had attended training programmes did so not through a conscious decision to invite them, but rather by default. The youth observed that the maize and bean intercropping and the seed rate regulation during plating were new in the community. They were, however, sceptical about the effectiveness of zero/minimum tillage on a larger area, contending that it was only good for small areas (less than 1 ha).

Good Practice

- Although removing the stover from the farm and putting it back may be time and labour consuming, Fate is thus able to save it from being eaten by roaming animals and also use it for moisture conservation.
- The youth are the most energetic category in family labour, with the ability to accomplish more farm work in a shorter time. Targeting of the youth for knowledge and skills acquisition promotes sustainability of innovations.

Lessons Learnt

- Increased yields through CA have spurred other economic activities, like cooperatives for beans marketing.
- If deliberate efforts are not made to involve the youth in implementation of innovations, they are most likely to be left out since they often do not own land and do not have access to productive assets.

2.2 Kenya

The SIMLESA programme has been implemented in Kenya since March 2010. Several varieties of maize and beans were introduced through the trial plots and trainings on CA practices such as zero tillage, application of fertilizers and use of herbicides were conducted. Participation by various farmers of different gender categories was encouraged and majority of them have adopted the promoted technologies due to their unique benefits hence improving their yields, household incomes, better household relations and other economic empowerment initiatives like the “merry go round”.

2.2.1 Embean 14 Bean: Improving livelihood in SIMLESA villages



Mr and Mrs Nyaga at their home.

Mr. and Mrs. Nyaga are retired teachers living in the Kyeni division of Embu East district of Kenya. They have been married since 1970 and have 7 children, 2 girls and 5 boys. All the children have completed school and with the exception of one who is at home, the rest are employed and live away from the division. Mrs. Nyaga is a member of the SIMLESA farmers group, which was started in 2010 with the introduction of the SIMLESA programme.

“In 2010, some staff of the Kenya Agricultural Research Institute (KARI), now known as the Kenya Agricultural and Livestock Research Organisation (KALRO), and the Ministry of Agriculture (MoA) came to our area, looking for farmers to host the SIMLESA project exploratory trials. I called my husband and we listened to them. After discussions, we showed them a shamba (garden or farm), approximately ½ an acre for that purpose. They explained that the project would provide demonstration materials (seeds, fertilizer and herbicides) and we, the farmers, were expected to provide the land, labour and manure for the trials. They further explained that the main purpose of the trials was to demonstrate to other farmers better maize and beans production, using conservation agriculture techniques. They indicated that all the produce from the plots would be retained by the farmer.

Later on in July of the same year, the KALRO and MoA officers came around and we joined them in laying out four plots, differing in tillage and weeding methods. The first plot was of zero tillage, the second plot had furrows/ridges prepared, the third plot was tilled conventionally using conventional tools, and the fourth plot used the farmer’s tillage method. Weed control in the first and second plots was achieved using herbicides, while in the third and fourth plots weeding was done conventionally, using jembes (hoes) and pangas (cutlasses). All plots were planted with DK 8031 maize, intercropped with the Embean 14 bean variety.

At the end of the first season, we got more maize and bean grains from the SIMLESA adapted intercropping system than the other methods. We, therefore, expanded the new

method of cultivation in our 3 acres of land that was remaining. We never used to apply fertilizer in beans, but now we do. I am very proud of the beans. I was given 1 gorogoro (a measure of about 2 kg) of Gachuma bean variety by my friend, planted it on about ¼ an acre of land, and harvested 60 kg of beans.

The SIMLESA Embean 14 yields about 2 times the other varieties that we have been planting. When planted alone, without intercropping, one can harvest over 6 bags (each of 90 kg grain) from one acre. On every plant of Embean 14, there are about 30 pods, compared to 8-15 on other varieties. The bean cooks very fast, thus providing a quick meal to someone coming from the farm hungry after hard work. The fast cooking also reduces the amount of firewood and the labour involved in cooking, which can then be devoted to other household activities.

The Embean 14 bean seed earns more than the other varieties. In 2010, we sold over 500 kg of beans in an exhibition event held in the division. The beans were sold at Kshs. 150 per kg. This was about 50% higher than the other beans. This season, due to heavy rains, I harvested 200 kg of Embean 14, which I plan to sell, but I will keep some for planting next season. The variety matures in about 90 days and does not require a lot of rain. I also grow other bean varieties, to diversify what is cooked in the house.

The SIMLESA project has provided farmers with improved tillage methods and high-yielding crop varieties, to address the differential needs of women and men; below is a field showing the intercrop of maize and beans.





Embean 14



Mrs Nyaga with the goat she bought.

From the sale of produce from the SIMLESA plots, I have bought one local goat. I have taken it to a better breed of male goat for mating. I thus expect it to produce a better breed that will be able to give me more milk.

The SIMLESA project has done good work in introducing appropriate crop varieties and tillage methods that have enabled farmers to get more crop yields than before. Besides the farmers in the project trial, other farmers have started earning benefits because they have copied what they have seen on the demonstration plots.

Good Practice

The SIMLESA programme provided a high-yielding variety of seeds for the trials to increase productivity. Mrs. Nyaga decided to grow some of their traditional varieties of beans, using the technology learnt from the programme, as a mitigation measure against climate change.

Lessons learnt

Mrs. Nyaga grows different varieties of beans, using different methods of cultivation for different purposes. She has also developed means of coping with climatic changes. Her interests and needs can, however, only be met if gender issues are incorporated in setting the research agenda.

2.2.2 Liganwa farmers group

The Liganwa farmers group is located in Liganwa village, Kakumu Kombewa sub-location, Central Alego Location in Boro Division, Siaya County in Nyanza Province of Kenya. It was formed in 2007. The group started with 24 members, but now has 16 members after some civil servants, like teachers, were transferred to other areas and the business-oriented ones opted out. The group, which started as an all-female entity, with the intention of helping widows in the community to acquire some capital to engage in small-scale business ventures, now has 4 men and 12 women.

Initially the group activities revolved around raising funds and savings, so they focused on activities like “merry go round” once every fortnight and “table banking” once a month. In

the “merry go round,” the women contributed KShs 650 each at every meeting. The money collected was given to one member to invest in a business of her choice. At first, priority was given to the executive members of the group, starting with the chairperson. This method, however, soon failed because of some members’ inability to meet their commitments when their turns were due. It was then decided that funds would be given to whichever active member has a need. Under “table banking,” each member contributes an initial sum of Kshs 1,000 per year. The group then meets once a month to advance loans to members who need them, at an interest rate of 10% per month. In the beginning, each member could only borrow the amount she contributed, but later the members could borrow more than their contribution if some members did not borrow. Interestingly, the interest accruing belongs to the individual member and not the group. At the end of each year, the members meet to distribute the money and each member gets the amount deposited and the interest accruing from the borrowed funds. This encourages the women to take a risk and borrow money to invest.

In March 2010, the group joined the SIMLESA programme after they learnt through a son of one of the members (Christine) that KALRO was looking for a group in Siaya to participate in a new project on farming. Christine introduced the idea to the group, and they agreed to meet with the researchers from KALRO. One day, four researchers from KALRO went to meet the group, explained the project to the group, inspected the members’ land and left promising to return. When the KALRO staff returned, the activities in the group started, with an initial group of 6 farmers, who participated in conservation agriculture. Later, another group of 7 farmers joined the seed evaluation activities. Two of the members were interviewed about their involvement in the project.

The group was taught zero tillage, spraying of weeds instead of digging, fertilizer application and planting. They said that this was different from the traditional way in which they would open up the land, using tractors, ox-plough or hand hoes. They



Group Members – Patricia, Christine and Rosemary.



Rosemary in her Desmodium spp. cover plot

worked with the KALRO staff on the 4 plots under experiment, from which they observed that the the zero tillage plots and plots with plant cover under *Desmodium spp.* registered high yields. Subsequently, the farmers applied a mixture of the skills learnt on their land.

According to Rosemary, the Chairlady of the group, the members have realized a lot of benefits as a result. The women are now able to sell some maize to get money, which they bring to the group. The amount of money that the women can now borrow has significantly increased from the initial Kshs.1,000 to between 3,000 and 5,000, and with 100% repayment rates. Members who previously had difficulties making payments are now in a position to easily make their contributions at the ‘merry go round’.

It was interesting to note how men developed interest in the programme after observing the benefits accruing to the women participating in the SIMLESA programme. After the first harvest, a large number of men expressed interest to join the Liganwa farmers group. The group members were, however, apprehensive of allowing a large number of men in the group, as this could lead to diversion from the core objective of helping each other as women, especially the needy ones. In the spirit of working together, however, they decided to accept four men of good reputation and standing in the group.

Good Practice

The identification of this women-only group to participate in the SIMLESA programme had positive results, in terms of helping poor women to overcome their lack of self-confidence and thus overcome the constraints in bringing about socioeconomic change by collectively resolving problems that hinder their progress.

Lessons Learnt

By grouping to address a common challenge, the women in this community were able to enjoy important advantages obtained by membership in groups,, such as economic gains from collective marketing, agro-processing, or input supply.

2.2.3 Increased yields elicit family participation – The Case of Patricia Oyugi

Patricia Oyugi, the Assistant Secretary of the Liganwa Group, was born in 1961. She is married with five children, 4 boys and 1 girl. Her husband is a retired public servant. When Patricia started with SIMLESA in March 2010, her husband was not interested and did not participate. But after seeing the bumper harvest of the first season, he was so excited that he decided to quit his job in October 2010 to work with her on the farm. Currently, they employ one permanent worker and hire two temporary ones during the peak seasons, such as harvesting. In her own words, Patricia narrated the benefits of the programme as follows:

“After gaining knowledge from the SIMLESA plots, I have expanded the area to 1½ acres of my own land. Although I do not practice zero-tillage, I dig because I have an ox-plough. I do not spray, because last season I bought fake herbicide (Round-up) that did not kill the weeds. The herbicides sold in Siaya are often counterfeit, and to get genuine products we have to go to Kakamega, which is far.

The major skills I got from the SIMLESA training on the plots are the application of the right amounts of fertilizer and the selection of good seed. I am now using this knowledge to cultivate my own land.

Before I started applying the knowledge on my land, I used to harvest only 1½ bags (90 kg each bag) of maize, but after following the KALRO instructions I am getting 14 bags of maize. I am very happy with the KALRO staff because they taught me how to improve yields of maize! I also belong to another group, where I have managed to train 26 members to cultivate using the SIMLESA methods.

My family members have been very supportive. After seeing what KALRO had done, my son offered to buy an ox-plough, so that I could cultivate a larger area. My husband was so excited about the bumper harvest that he decided to build a “KARI store” even before building me a better house. He built the house after two years of cultivating maize, beans and groundnuts.



Patricia and one of her sons, with the ox-plough



Patricia with some of the harvest in her newly built house



Patricia, Rosemary and KALRO staff outside the “KALRO Store”

I now have food in the house throughout the year, and I do not ask for money to buy meat and fish in the home. I also give my neighbours some maize as a gift during times of food shortage.

Currently I am paying school fees for my daughter, and I can afford to give her all her school requirements. She is the youngest, and my only daughter. I am able to give her better support than I gave the older children, so I expect her to perform much better in school. I always tell her that I want her to become a scientist like those people of KALRO”.

Good Practice

Training of Patricia in different agricultural production techniques is a good practice that enabled her to increase production, as well as to ensure food security and increase household income.

Lessons Learnt

Identifying people like Patricia, who belong to more than one village group, as participating farmers, has the advantage of bringing greater benefit to the community from the multiplier effect of improved practices then spreading across the groups. Given that Patricia belongs to multiple groups, constituted for different purposes, she is able to play a very effective role in the scaling out of the technology. When Patricia learnt of the CA technology and was convinced of its benefits, she was eager to adapt the learned skills and train her peers in other groups. Increased yields are an incentive to adoption of Conservation Agriculture technology.

2.2.4 Disability is not inability

Rosemary Oganga is a 72-year-old widow who lost her arm in a motor accident in 1982. Her husband passed on in 2011. Of her 10 children, only six, five girls and one boy, are surviving. All the children are working away from the home. In spite of her handicap, Mrs. Oganga is a very active and progressive member of the Liganwa group, where she is the Chairperson.

Rosemary is practising the SIMLESA technologies on $\frac{3}{4}$ acre of her land, on which she plants maize and beans. She ploughs and applies fertilizer using a bottle top, as taught by the KALRO staff, and also chooses the right seeds. She said that before these technologies, the yields were not good. She would harvest only 2 bags of maize from this land, but she now harvests 6-8 bags of maize.

Rosemary said previously they used to remove crop residue from the farm to feed the animals, so there would be a lot of weeds. The planting was done in a 'disorganized' manner, with no specific measure of fertilizer applied, resulting in under or over application. This uneven application of fertilizer resulted in poor yields and high production costs, owing to fertilizer wastage.

In her own words, Rosemary said: "We now eat and I help my relatives. In the African culture, we are obligated to provide assistance to our neighbours with food. I can now fulfil obligations arising from my cultural practices because I am in a position to do that."

Asked what benefits she has so far got from the project, she said "The benefits I get are from God and I feel happy; it



Rosemary in front of her house.



Rosemary, with some of the harvest from her plot



Worker cleaning maize outside Rosemary's new store.

encourages me to work better.” She added that her status in the village had been enhanced. This, she continued, was evidenced by the number of people who seek her opinion in the community and the many leadership positions she has been offered, until she just had to turn some down. The increase in harvests has compelled Rosemary to build another structure to store the maize.

Good Practice

Working in a group has enabled Rosemary to participate in the programme, whereas she would otherwise have not had access to information on the technology, or be able to work on her own. Giving opportunity to groups that have vulnerable persons assists their households to work towards food sufficiency.

Lesson Learnt

Although she has a disability, Rosemary can participate in agricultural research and earn a living, because she has the right supporting social systems, emphasizing the value of such systems.. Training opportunities provided to different user categories, such as the disabled, minimize production losses and **fertilizer wastage**.

2.2.5 The Nakhafu farmers group



Sharon, Patrick and Dorcas of the Nakhafu group.

Dorcas Mumali, Sharon Wanyama and Patrick Kitui are the treasurer, secretary and member, respectively, of the Nakhafu farmers group.

The Nakhafu farmers group is located in Syekumulo village, Bumula sub-location in Bungoma County of Kenya. The group comprises of 20 energetic members (9 men, 11 women), with the oldest and youngest being 53 and 32 years, respectively. It was formed in 2009 to promote unity, team work and to provide a collective voice to demand for services from the Government. The group engages in agricultural production, especially horticultural production, with crops such as tomatoes, water melon, onions and vegetables, and it also keeps livestock, such as goats, pigs, cattle and chicken. Each season, the members plant a common crop, synchronizing the planting and harvesting, and then undertake collective marketing of the harvest to get good market prices. The group collects contributions from members, which they invest in livestock production. To reduce labour costs, the livestock is entrusted to members rearing similar animals. When the animals are sold, the proceeds are deposited in the group fund.

The SIMLESA project is not the first intervention for the Nakhafu group. Previously, they participated in a goat rearing project introduced by the then KARI. It is through this past

The farmers are now able to sell the surplus crop to meet other household needs. This has improved household relations

experience that they were approached to host the SIMLESA demonstrations on Conservation Agriculture. The project began in the second season of 2010, and 6 members of the group (3 women and 3 men), who had uncultivated land, were selected to host the demonstrations.

The group was trained on zero tillage, the use of a cover crop, residue retention and crop rotation. One important thing the farmers learnt and appreciated is the application of fertilizer. Prior to the training, the farmers would apply about 100 kg of fertilizer per acre, but the yields were still low. The fertilizer was drilled along the furrows even where there was no seed, but with the SIMLESA training, they learnt that fertilizer is only applied in the hole where the seed is put. This has tremendously decreased the amount of fertilizer applied (to 50 kg/acre) and yet the yields are higher.

Using zero tillage, last year, Dorcas, one of the members, harvested 32 bags of maize and over 2 bags of beans from 2 acres of land. This was a marked increase from the 14-16 bags she used to get before the introduction of the zero tillage. Another farmer, Patrick planted maize and beans, using the bottle top to measure fertilizer, and he got 8 bags of maize compared to the 4-5 bags he used to get previously. The differences in productivity between these two farmers were attributed to differences in soil characteristics.

The household incomes have considerably increased, owing to the surplus crop obtained by using the new farming methods. The farmers are now able to sell the surplus crop to meet other household needs. This has improved household relations, as testified by one of the women farmers: "For a woman, if you want the relationship to be bad, then be on the begging side. I am now a major producer, so even if my husband is to sell the produce, I am involved. There is peace; when there is food in the house there is no problem."

The farmers are growing *Desmodium* spp. as a cover crop. The cover crop is very good because it conserves moisture and also improves soil fertility. The farmers know that *Desmodium* spp. provide very good animal feed that increases the milk yield, so at times, seed of the cover crop is given to the livestock farmers in exchange for milk for the children. Unfortunately, because of its nutritional value to the animals, *Desmodium* spp. is very susceptible to theft.

Despite the benefits of *Desmodium* spp., its establishment is very labour intensive. It takes longer than maize to germinate, so planting at the same time makes it prone to damage during weeding. The farmers have discovered that propagating *Desmodium* spp. using the vines is easier, and it reduces losses.

The way in which farmers recounted the benefits of the SIMLESA project is captured in the box that follows.

Sharon: I am now able to pay school fees for the children. I used to depend on my husband for everything, including paying school fees. I used to buy food, but now I have enough food. I pay for labour for planting and at times for spraying too, if the area to be sprayed is large. I give some of the produce to the workers as payment for labour during harvesting.

Women are the ones who suffer a lot when there is no money, so when there is money there is peace in the home. Children get enough food and their school needs are paid, so they do not get chased out of school. The performance of my children in school has greatly improved. My son in Primary 4 has improved from 10th to the 1st position in his class; even the others have improved in their class positions.

Labour on the farm has reduced because of zero tillage. Weed germination is also reduced because of spraying with herbicides, increased crop coverage and crop residue cover. I now have time to look after animals and also to go to the market to sell fish. I spend more time on the horticulture, which also brings in more income.

Dorcias: With the additional income that I now earn, I pay school fees for my children. I have nine children in school. Two are in Moi University and the youngest is in Standard 8. My husband helps on the plots, by spraying the crops. I am now able to afford herbicides to use on my land which is not under the SIMLESA plots. I am really happy with the project.

Patrick: I pay school fees and buy herbicides to spray my horticultural crops. I have two children; the one in Form 2 has improved to the 1st position. Because the labour on the farm has decreased, I have more time to engage in horticulture. My wife is not in the group, so she supports me by cooking food for the workers.

Good Practice:

Giving skills and production resources to the women in this group enabled them to venture into more innovative ways of improving family income. Instead of waiting for seeds of *Desmodium* spp., the women in Nakhafu Group found faster means of propagating *Desmodium* spp., using vines and exchanging it for use as a nutritious fodder for the livestock, which in turn provided milk for the household.

Lessons Learnt:

When the household income of especially the women increased, it was primarily spent on the welfare of the whole family, by ensuring food security, and improving the education and health of the children.

2.3 Malawi

The SIMLESA programme has been implemented in Malawi since March 2010, and before then, most conservation agriculture was viewed as a farming method for well-to-do male farmers in almost all the communities in the programme area and beyond the impact sites. Upon exposure to the labour and time-saving technologies coupled with the promotion of legume crops (women's crop) more women have adopted the technologies being promoted under SIMLESA. With the support provided, especially to female farmers, they are able to perform better in agricultural activities and realise more benefits. The number of female demonstration hosts has increased as a result of their increased participation in the project activities.



Mr Chiotha Sikanadzie, Coordinator Mitundu EPA in his office.

2.3.1 Experiences of the extension staff in the SIMLESA Programme

Mr. Chiotha Sikanadzie is the Coordinator of the Mitundu Extension Planning Area (EPA). We met the coordinator and asked about his experience with the SIMLESA programme and the participating farmers.

He informed us that the SIMLESA programme is implemented in the Chiwiri Section which comprises 48 villages with 1,669 households, of which 882 are male headed and 787 female headed. The relatively high number of female-headed households was attributed to the migration of most men to cities like Lilongwe and to Mozambique to work on tobacco farms. He mentioned that polygamy is a very common practice in the area, with the man sometimes having several wives in different locations. In such cases, the women have authority and make all the decisions in the household. They are, therefore, registered as the bona fide household heads.

In most cases, when the men return home, they do not bring back anything to support the family. The men have a tendency of going away to the city at the beginning of the rainy season, when farming activities have started, and they return after harvest to eat and then leave again. They are also very quick to offer services for transporting the harvested crops to the market or auction, as well as drawing budgets for expenditure. Eighty (80%) of the farmers are women. The women understand that they are the beneficiaries of improved farming because they have to ensure food security in the household.

In terms of extension programmes, continuity and sustainability is made possible by the fact that most of the farmers in groups are women, who are always available and easy to follow up with. They can decide on suitable times for their meetings, most of which start

at 2.00 p. m. On the few occasions (once a month) when they have to hold their meeting at the extension offices, it is from 8 am to 11 am to enable them get back home early enough. The men, on the other hand, always find excuses, such as going to the market or other engagements, so as not to attend programme meetings.

In the village banking system, the women are able to contribute money for the agreed period and then share the money without any problems. Whenever the women's groups are joined by men, there are problems. The men tend to borrow and disappear, while women have more responsibility around the homes and are not likely to disappear. The women in the Chiwiri section have proved that they are capable of undertaking any development venture. This is exemplified by a group of women who have excavated 8 fish ponds by themselves.

Good Practice

The recognition of women as the head of households, even when they are married, transcends most cultural norms. This classification and recognition by the extension coordinator enables the targeting of information to the women, thus promoting their participation in various development initiatives.

Lesson Learnt

The limited mobility of these rural women made them truly trustworthy partners in the implementation of many agricultural programmes, such as extension services and village banking, ensuring continuity and sustainability. Because the rural women work in the farms around their homes and are responsible for household food security, they committed time and energy to ensure the success of the agricultural innovations.



Chisamba women's group, near one of their fish ponds.

2.3.2 Conservation Agriculture, a beacon of hope for women in Mtunthama



Lukhere and Christina (standing extreme left and second from left), with other farmers participating in CA on Christina's maize plot.

Christina Nyirenda is an example of how Conservation Agriculture continues to improve the lives of women in the Mtunthama area of Malawi. She recalls how the agricultural extension worker for the area, Mr Lukhere, explained to her the concept of Conservation Agriculture (CA) and since then, she has never looked back. One of the objectives of SIMLESA is to test and develop productive, resilient and sustainable smallholder maize-legume cropping and innovation systems for local scaling out. SIMLESA is thus carrying out experimental studies in a number of districts, including Kasungu district where the site is located in Mtunthama. Christina is one of the first six farmers taking part in these experimental studies, and she already boasts of a number of lessons from the study.

Christina cannot remember the year she was born, but thinks she could be around 57 years of age. She remembers, however, that she got married in 1970 and that she was engaged in farming with her parents until 1973, when they gave her 2 acres of land. With the birth of her 15 children, 8 of whom are still living, the land was increased to 5 acres. As her children grew up, Christina shared part of the land among them and now retains 2 acres, which she cultivates.

Gender disparities are a reality in Malawi. There are marked differences between men and women in terms of access and control of agricultural production resources, such as land, credit, extension services and farm implements. The participation of women in decision making in the agriculture sector is limited in comparison to men, and this is not helped by the fact that the process is dominated by men. Women, especially widows, are the main victims of agriculture-related property grabbing, including land, oxen, ploughs and inputs. They also have limited access to agricultural markets, owing to lack of transport, technology and price negotiation skills. These disparities reduce the efficient use of resources and the fair distribution of benefits among various categories of people. Like many women in Malawi, Christina remembers how she used to be overburdened by the triple roles³. assigned to her gender.

Christina stands in a class of her own, however, since she is one of the few local leaders in her area. She is the Group Village Headwoman in Chingwalu. This means that apart from farming, which is her main source of livelihood, she has to take care of her family as well as attend to development meetings as the group village headwoman.



Christina in her traditional robe of governance.



Group Village Headwoman Chingwalu and the extension worker addressing her village group.

3. Triples roles in gender refer to productive, reproductive and community roles that normally women perform.

Christina explains that CA has come in handy because she has been able to save some time to attend to her many duties. She recalls that before she started CA, she would spend up to ten hours in the farm, and this took a serious toll on the care given to her family, as well as the service rendered to her subjects. She now tells a different story as she believes that CA is labour saving and because of that, she can now attend to a number of activities without compromising the yields from her farm.

Apart from her maize plots, she is now able to work in her groundnut and soya bean crops. She says the crop yields have risen tremendously, and she is able to sell some of the maize. Before she started practicing CA, she would harvest 2 ox-cart loads from her two acres of land, but now she harvests 2 ox-cart loads from ½ an acre and is able to grow other crops on the same piece of land.

Because she spends less time at the farm, she is now able to keep some goats, something that seemed very difficult before she went into CA. Apart from the five demonstration plots that are under study, Christina has another field where she is practicing maize growing with residues, does hand weeding, but does not apply any chemicals. She now has time to participate in the village savings and loan group in the area, something that has also increased her income base.

Christina believes that as a woman, she has a great role to play in ensuring that women are able to identify labour-saving technologies, such as CA, to help improve the living standards of people in her area. Since inception, 14 other farmers have been encouraged to started practicing CA in her village. Eight of these are male and six are female. Despite the challenge that she faces with mice hunters⁴ who destroy the mulching in the gardens, she has hope that, with awareness meetings in her community, the situation will improve.

Christina is convinced that the commitment she has for achieving goals, and the confidence the people in her community have placed in her when they chose her as a host farmer for the trials, will make it possible for farmers engaging in CA to succeed in their endeavours, without causing conflicts with other members of the community, who want to feed the maize stover to livestock and the mice hunters.

Good Practice:

Adoption of zero or minimum tillage agriculture, and weed control through cover crop/mulching or use of herbicides, critically reduced labour demands at peak seasons of land preparation and weeding.

Lesson Learnt:

Apart from household chores, such as cooking and looking after children and the sick, Christina has traditionally defined roles in agricultural production, which include planting, weeding, harvesting, and postharvest activities, such as threshing, winnowing, and grinding. The time and energy spent on performing these roles was greatly reduced by changing farming practices to CA, which enabled her take up other opportunities, such as leadership roles, among others.

4. Mice are a delicacy among the Chewa tribe. As people hunt mice, they dig up the gardens and destroy the mulching.

2.3.3 Achieving sustainable agriculture through SIMLESA in Malawi: The case of Adoni Nankhwani

Location: Chiwiri Section, Chisamba village, Traditional Authority Chadza, Lilongwe, Malawi.

As far as Adoni Nankhwani can recall, she has been farming since she was 5 years of age; for her it was just part of growing up. When she got married at the age of 16 years, she was given 2 acres of land by her mother. Her husband also received about 1 acre from his mother. In the Chewa tribe, a husband lives with the wife's family; as such, Adoni and her husband mostly farm on her 2 acres because of its proximity. Her husband's land is quite a distance away, and cultivating it necessitates sleeping over, away from home.



Adoni and her husband in front of their house.

Adoni has been participating in the SIMLESA programme for the last three years. She narrated that in the past they used to construct ridges in the maize fields and then apply manure, a practice that was not only labour intensive but also expensive, because the manure had to be transported to the fields. The SIMLESA technique, on the other hand, is much more manageable, because it only requires mulching and then you wait for the rains to plant. The only challenge is the inadequacy of stalks for mulching, which at times have to be transported from some other farms.

Adoni got involved in SIMLESA when the village heads called for a meeting and the people voted the hard-working farmers. Although other farmers volunteered to host the trials, they could not meet the required criteria, such as farmer commitment and proximity of the plot to the road. The first year she joined SIMLESA, Adoni harvested a lot more crop than the previous years when she used the conventional farming system.

After observing the good performance of the SIMLESA plots, Adoni decided to expand the CA techniques on her land, extending to 1½ acres. She applies less fertilizer than before because she now practices the 1 x 1 planting, as compared to the 3 x 3 planting which takes more fertilizer. Her yields have also increased from 1 to 6 ox-cart loads. Adoni is particularly captivated by the use of less fertilizer and increased yields, which have accrued from engaging in SIMLESA activities.

The SIMLESA technique, on the other hand, is much more manageable, because it only requires mulching and then you wait for the rains to plant



Traditional planting of soya bean and cassava on ridges.

The family's current food reserves will last until February⁵, a great improvement from preceding years when food would be depleted by the month of June in the previous year. Before the SIMLESA programme, the entire harvest could be transported on a bicycle, but Adoni now has yields enough to dry, treat and store in bags in the house.

She is now able to sell some soya beans and maize, which has improved the household income. With the improved income, she can now access medical services from private clinics. She has also procured iron sheets and is planning to construct a brick house.

The couple has 7 children, and 5 of them are able to work in the fields. Adoni's husband only helps on the farm when his bicycle, on which he trades firewood in the nearby town, is broken down. Occasionally, in times of critical labour shortage, he contributes money from his business to hire labour. The Chewa culture of having a husband live with the family of the wife curtails occasions of the woman facing domestic violence because she is surrounded by her relatives. Decision making is also more consultative among the couple.

Good Practice:

Inheritance of and control over land, a major production asset, conferred upon Adoni some degree of authority, which enabled her to participate in decision making processes and allowed more consultation with the male partner.

Lesson Learnt

Adoni does not draw differences between farming activities and her rural life. This gives us a better understanding of how gender differences affect agricultural production in relation to asset ownership and decision making, and how they are critical to the success of any innovation.



Adoni (at left), interviewed by Panji (middle) and Sondo (right), Extension Staff from SIMLESA.

5. This is the month we visited.

2.3.4 Recognising women's potential – Mrs Chalendewa

Mrs Chalendewa, a mother of seven children, lives in Kamgumbwe village, located in Mitundu, Lilongwe district, of Malawi. Her husband, Dominic Chalendewa, works with the Lilongwe University of Agriculture and Natural Resources, formerly called Bunda College of Agriculture. When she got married in 1981, her mother-in-law gave her a small portion of land for farming, and as she produced more children, the mother-in-law kept adding more land, to cater for the growing family. Mrs Chalendewa acquired more land when her sister-in-law (husband's sister) got married and moved away from home, and even more upon the death of her brother-in-law. She eventually took over all the land when her mother-in-law passed on. The same land will be shared out to her children when they grow up.



Mrs Chalendewa, SIMLESA farmer (middle), being interviewed by SIMLESA Extension Staff: Panji (left) and Sondo (right).

At a community meeting called by the village heads and facilitated by the extension workers from Mitundu EPA, they were informed of a new project (SIMLESA), which was looking for farmers to host demonstration trials. Mrs. Chalendewa volunteered and, despite stiff competition, was chosen as one of the direct beneficiaries, because she was very hard working. Apart from the many benefits of the project, Mrs. Chalendewa was also very happy that she now had the chance to try the new technology on the witch weed (*Striga asiatica*), which was negatively affecting her crop yields.

Mrs. Chalendewa does not only practice CA on the SIMLESA plots, but is gradually expanding it to her land in the vicinity of the plots. Inadequacy of mulching material is the major limiting factor to scaling up of the CA technology. The amount of stover from the crops on the field is not enough to cover all the ground, necessitating the collection of stover from other people's fields, a process which is highly labour intensive.



Mr and Mrs Chalendewa in front of the SIMLESA trial plots for soya bean and maize.



Mr Chalendewa explaining the expanded fields to researchers Boaz Mandula and Ellen Sondo

She is encouraged to expand the CA system because it is ultimately both labour and time saving, which enables her to perform other activities in the home and field. Due to the reduced time spent on cultivation using the CA system, she is able to spend more time on other fields growing crops, such as groundnut, whose sales go to support the children’s education.

On the improved seed varieties, Mrs. Chalendewa recommends the maize variety MH 26 for the high yields and also because it is very good for preparing nsima⁶. Chalendewa could not estimate the difference in improvement of the yields in her farm, but she noted that in the past the harvest would get exhausted before the next harvest, whereas now it takes them through the usual food shortage months of February until the next harvest without running out of food.



Mr Chalendewa next to the granary.

Good Practice:

The identification of Mrs. Chalendewa as an individual who was hard working is a good practice, which goes beyond the stereotype of the husband as the head of the household and provider.

Lessons Learnt:

The availability of time and improved food security gave Mrs. Chalendewa the confidence to venture into cultivation of groundnuts to supplement household income, which supported her children’s education.

6. Nsima is a staple food made from maize flour.

2.3.5 Generating SDD and GDD to evaluate farmer performance in the SIMLESA Programme

A study was undertaken by Amon Kabuli⁷, Boaz Mandula⁸ and Pilirani Ngwale⁹ in September 2012 on the SIMLESA programme in Malawi, with a view to understand the socioeconomic characteristics of the households participating in the SIMLESA trials and how the various gender variables affected performance. The study looked at age, marital status, sex of household head, level of education, average household size, labour, average land holding per household, selection of members participating in SIMLESA, asset ownership, types of houses, ownership and access to agricultural implements, decision making, food security, livestock ownership and source of credit. The study produced a mixture of data that included general, sex and gender disaggregated data (SDD and GDD, respectively). Nonetheless, the information collected can further be processed to generate a valuable resource to the programme. Some of the findings of the study are summarised below.

Age: The individual's age influenced the amount of labour allocated to production of a particular crop, knowledge uptake and decision making. Households in the age group 25-35 seemed to perform better than the other age groups; this was followed by the households in the age of 36-45 category, then those between 56-65 years of age.

Marital Status: The higher performers were found among the married (61.4%), followed by the single (10.2%), then the separated (8.4%) and lastly the polygamists (2.8%).

Sex: In the study, male-headed households (MHH) seemed to have a much larger share (33.6%) in higher performance in the trials than the female-headed households (FHH) who had 14% performance share. While 25% of the MHH were rated as good by the extension staff, 19.6% of the FHH fell in the same category.

Education: The majority of the respondents (61.1%) had attained only primary level education, 22.2% secondary school level, and 13.9% had never been to school and could neither read nor write. A small minority of 2.8% reported that they had never been to school but could read and write.

Labour: Household size influenced availability of labour for agricultural activities. With the exception of two districts (Mchinji and Salima), which had an average of six (6) members per household, more than half of the households in the other districts had an average of seven (7) members per households.

Land Ownership and Size of the Farms: The average total land holding per household was found to be 0.6 ha for MHH and 0.008 ha for FHH.

Participation in the SIMLESA trials: The attributes for selection of farmers who participated in the programme ranked as follows: hardworking (27%), closeness of farm to the road

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8. Boaz Mandula is the National Coordinator of the SIMLESA programme in Malawi.

9. Pilirani Ngwale is a Research Officer with Kirk Development Research and Training Centre, Lilongwe, Malawi.

The culture of the region predominantly promotes the view that women are second class people in the society, whereby they should not take active role in development and decision-making processes

(22%), trust (22%), interest in agriculture(14%), ability to understand and experience in agriculture (12%), and finally food insecurity (3%).

Income: The income of the household determined the kind of inputs and investments to venture into. About 19.6% of the MHH farmers were involved in business to earn a living, 13.9 % said that they had experience in petty trading, 2.8% were engaged in art and craft, and 2.8% said that they had been engaged in other self-employment activities.

Asset ownership: The most goods owned by these households were bicycles, 61.6% (MHH) and 16.8% (FHH), followed by radios, 53.2% (MHH) and 14% (FHH). About a third owned cell phones 47.6% (MHH) and 19.6% (FHH). The female-headed households had the lowest rate of ownership of assets, compared to the male-headed households which had the highest rate of ownership. This was an indication of higher poverty rates amongst the FHH. That may also have translated into low levels of investment in the SIMLESA trials by them, compared to MHH.

Ownership and access to key agricultural implements: The most common implement owned was the hand hoe, followed by the panga, knife, the axe, the shovel, the sickle, the sprayer and the wheel barrow, all of which were owned by more than half of the households. The rain gauge and the ox cart were owned by about two fifths, while the treadle pump was owned by very few. An important point is that many of the households did not have access to large agricultural equipments, i.e., ploughs, tractors, carts and the harrow, because a majority of the respondents were smallholder farmers, not in a position to buy farm machinery.

Culture: The culture of the region predominantly promotes the view that women are second class people in the society, whereby they should not take active role in development and decision-making processes. In most households, decisions on agricultural equipment use were mainly made by both husband and wife (41.7%), while the husband alone decided in 36.1% of the households and the wife alone in 16.7%.

Food Security: Food is one of the most important basic needs of a human being. The majority of the households (47.2%) had food lasting from 7 to 12 months, 38.6% from 5 to 6 months, and 11.1% each from 3 to 4 months and 1 to 2 months. The FHH seemed to use their harvests for a longer period than the MHH with 61.6% of male-headed households reporting to have run out of food in the first 5–6 months after harvesting, while only 16.8% of female-headed households reported to have run out of food in the same period. This could be explained by the fact the MHH had more land holdings than the FHH. From the study, it was found those households with better food security had better performance, 89.6%.

Credit: Credit is a source of capital for purchasing farm inputs and paying for labour, among other things. The major source of access to credit was informal groups, whereby access to credit for both the man and the woman in MHH was 14.0%, and access to credit only for men in MHH was 2.8%; other sources of credit for men in MHH were relatives and friends (11.2%), bank or microfinance (5.6%) and finally NGO/church (2.8%). The MHH (66.7%) has had a higher percentage to credit access than the FHH (33.3%)

Source of Information: The major sources of market information were Radio/TV (87.2%), other associations (22.4%), family and friends and farmer associations (11.2%), and finally Newsletter and agricultural merchants (2.8% each). See Figure 4 for a graphic presentation of this data.

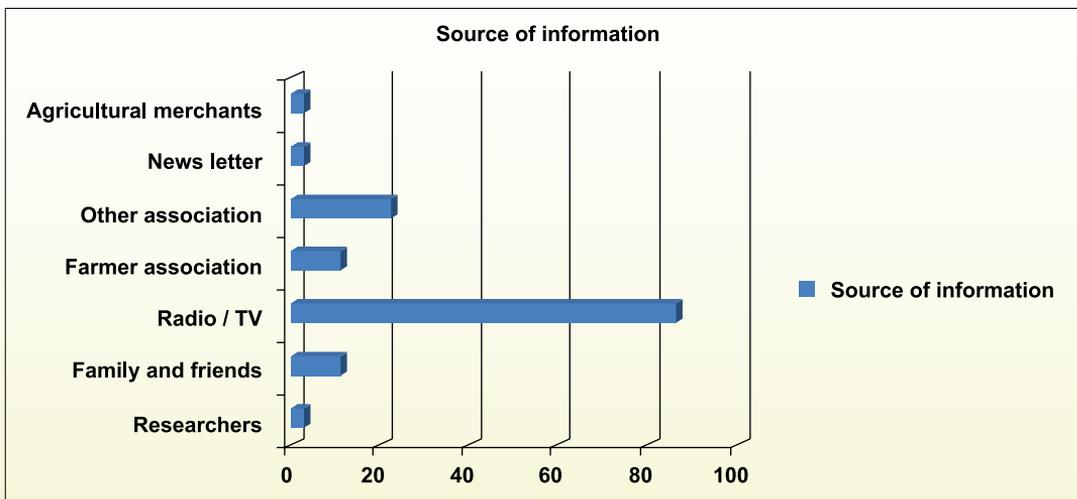


Figure 4: Sources of agricultural information for the farm households studied in Malawi.

Good Practice

Sex and Gender Disaggregated Data (SDD and GDD) is important in improving programme/project targeting; it maximizes resource allocation and increases programme performance. Such information is best when collected at baseline survey level, but it can also be collected in the process of the project. Although the data collected in this case study was not entirely SDD and GDD, it has a lot of potential for transformation.

Lesson Learnt

The collection of SDD and GDD is possible, with an improvement in the data tools to include gender variables. This data provides evidence for strategic gender considerations during project implementation. The SIMLESA Programme can conduct country-specific gender studies to understand factors that can affect the participation in trials as well as the out-scaling of the technologies.

2.4 Mozambique

The SIMLESA programme has been promoting Conservation Agriculture (CA) in Mozambique since 2010, as one of viable options available for increasing agricultural productivity and household food security sustainably while improving soil fertility. Adaptation of CA to socio cultural and biophysical settings is believed to reduce gender inequality gap in the traditional farming systems and promote gender integration. Changes in farming systems impact on men and women's resources (time, labour, capital) differently. It is important for scientists and development partners to understand how CA principles and practices influence gender relations as well as getting strategies to address the differing needs across the various gender categories.

2.4.1 Gendered division of knowledge – The Abelha farmers group

The Abelha-IDEAA association, located in Macate village, Gondola district, Manica Province in central Mozambique, was formed in 2006. The association, which started as a group of farmers cultivating sunflower, later evolved into a registered formal body, on the advice of IDEAA. The current membership comprises 22 people (8 women and 14 men). The Association started cultivation on borrowed land, but later 10 members contributed 1,200 MT (USD 40) each to purchase 2 ha of land. Each paid-up member was allocated a plot from the land. The proximity of this land to a river makes it ideal for growing vegetables, which have a ready market. In the dry season, they plant maize because it is in high demand.

The group plans the cropping season together. They contribute funds to purchase seeds and fertilizers and maintain a vegetable nursery, from which they all get seedlings. Unless there is a demand for large amounts of vegetables, the farmers usually sell their vegetables individually.



Some Abelha IDEEA Association members in front of one of the maize trials on their land: (right-left): Ernesto Chimoro, Argentina de Glória Celano, Glória Tazenda, Rosa Leus and Rosa Ranguisse.



Angela Machinji, SIMLESA Gender and M&E Focal person (at left) with Argentina, SIMLESA farmer, near the maize silo.

The association is involved in SIMLESA trials for maize and soya bean, established on the association land. The SIMLESA programme supplied several varieties of maize seeds, such as *Tsangano*, *Dimba* and *Olipa*. The farmers showed differential preference of these seed varieties, depending on their needs. For example, *dimba* variety was favoured because of its early maturity (planted in October and harvested in December), which assures the farmers of food during the critical food shortage months. Owing to the growing demand for seed in the community, the association members expressed an interest to multiply maize seeds from the SIMLESA project for the local market. According to them, dependency on external sources for seed supply often leads to late procurement of seeds, long after the season has started, which results in poor germination rates and harvests. The confidence in seed production is reinforced by the fact that the community observes the good performance of the varieties on the trial plots and then encourages farmers in the community to buy this seed.

There is thus an informal seed supply in the village, where farmers with seed in their silos sell to other farmers. Although these are local seed varieties of lower quality, the availability on the local market at the right time of planting gives it an edge over the certified seeds, which are more expensive and may not be supplied in time for early planting. The farmers in the group believe that if other farmers are aware that there are silos like Argentina's with seed, they would come to buy.

When asked about the variety the association would like to multiply for seed, the farmers had different views, as shown in the boxes that follow.

Gloria Tazenda was born in 1972 and did not go to a formal school. But she attended adult literacy classes, so she knows how to read and write. She is married with 8 children, the oldest is 25 years old and married. She prefers the Dimba variety, because it has a short maturity period. Although it has a small cob, it provides food for the family in times of crisis. "Dimba is resistant to drought and I am sure people will like it because food scarcity and drought are common problems," she says.

Ernesto Chimoro is 49 years old and the husband of Tazenda. He works on the farm with his wife, and the two own a stall in the market where they sell their farm produce. Tazenda and Chimoro grow maize, banana, sorghum, vegetables and soya beans. Although they own 5 ha of land, they can only cultivate 3 ha and they do not have a title to the land. Ernesto prefers the Tsangano variety of maize, because it is resistant to weevils, produces high yields, and is hence good for commercial production. "You can also eat it. It is good for selling fresh because of the big cobs," he says..

Rosa Leus is 50 years old, and married with 8 children, who have all left home. Rose owns 2 ha of land, on which she grows maize, tomatoes, onions, cabbage, beans, lettuce and soya bean. She also owns a plot on the association land. Rosa prefers the ZM variety of maize, because it has a big cob and big grains. "This seed helped me a lot last season, when my silo was burnt. ZM gave me food in less than 3 months. With cultivation on a small piece of land, I was able to get enough food because of the high yields," she says..



Right to left: Rosa Leus and Gloria Tazenda hold a maize cob from Celano's seed silo.

The SIMLESA programme has taught them a lot, with trials that have very high yields. In some cases, the production on the trial plots is equivalent to the yields on larger areas. The knowledge of plant spacing, and of seed and fertilizer application, is very useful. Seed multiplication is a good idea, which could augment the association members' income, as well as increase the yields of other farmers in the community.

Good Practice

Encouraging the farmers to form linkages from the SIMLESA activities to supply inputs, such as seed, ensures timely supply of good quality seed to farmers. It also stimulates economic opportunities especially for women as seed suppliers.

Lesson Learnt

The role of seed selection from the harvested crop and storage is traditionally a woman's role. Involving women in research technologies, such as trials of crop varieties, would result in more sustainable propagation, as they are more likely to preserve and share seed within the community.

2.4.2 Gender and culture — Fidelis Zacarias



Fidelis (in red coat) with Samuel, the translator.

Fidelis Zacarias is 58 years old, married to Mailosi Aligeta, and lives in Kabango village, Ngonia district, in Mozambique. They have 6 children, 3 girls and 3 boys. The eldest and youngest are both boys, aged 30 and 16 years, respectively. Together, Fidelis and his wife own four fields, of which two belong to the couple and two belong to his wife. Before marriage, the couple entered into a pre-nuptial arrangement for the couple to remain at the patrilineal home, to live with and support Fidelis's parents, who were deemed very poor and unable to cope with labour and food demands. This is in contrast to the cultural norm where men do not pay lobola¹⁰ but leave their homes to settle in with the wife's family.

Fidelis has been working with SIMLESA for three years on a 15 x 20 m plot. Mailosi and three of the children help Fidelis on the field. During peak seasons, the married children come to help on the farm. They are youthful and energetic, so they work fast and often finish their own fields quickly.

After implementing the SIMLESA CA technology, Fidelis harvests at least 2-2½ ox-cart loads of maize, instead of the earlier harvest of 1 ox-cart load. He plans to scale up the SIMLESA CA technology. His plans to expand the area under coverage in the previous year were hampered by payment for treatment of his children, who were sick with malaria.

10. In the Ngoni culture, a man does not pay lobola (bride price); once married, he moves to live with the wife's family.

He hopes that since the government distributed mosquito nets, the malaria incidents will reduce and he will be able to invest in farming, rather than spend on medical treatment.

He plans to use the income from the increased yield to pay lobola (bride price) for his sons when need arises. He pays school fees of 3,000 MT (USD 100) for his son in Standard 7. Fidelis supplements his income by moulding bricks in the off season, after harvesting the crops.

Good Practice

Fidelis and Mailosi were able to overcome the cultural constraint of matrilocation, so as to provide labour to help the poorer family and thus improve their lives.

Lesson Learnt

Culture has a big influence on the movement of family labour, which impacts on its availability for agricultural production.

2.4.3 Technology adoption and adaption — Maria Goleti Luis and Xavier Bifolo

Xavier Bifolo of Chiphole, Angonia district, in Mozambique has been married to Anna Maria Goleti for 28 years and they have 5 children (3 girls and 2 boys); the oldest is 20 years old, married but still lives with him. Their main source of livelihood is agriculture. They grow soya bean and maize, some of which they sell. Bifolo got 3 acres of land from his mother and Anna Maria also got ½ an acre from her mother. Bifolo lives on Anna Maria's land.

In the Ngoni culture, men do not pay lobola (bride price) in marriage. When a man marries, he goes and lives with the wife's family. The children produced in this marriage belong to the wife. This is a matrilineal culture, which is the opposite of the patrilineal culture in which the woman relocates on marriage.

Today was the first time that Bifolo had attended the SIMLESA farmers meetings, and it is only because Anna Maria had to attend to a sick child at home. Bifolo works with Anna in the fields, but when they return home Anna continues to cook food and does other duties, while he does some light work around the home as he waits for the food to get ready. During the rainy season, there is a lot of work, so he helps with some household chores like fetching water. Anna takes the children with her to the field. .



Xavier Bifolo

Bifolo says they have extended the SIMLESA technology to another plot of 30 x 20 m. . They did this because they got some substantial harvest from the SIMLESA plot. They are, however, using the local manure, instead of fertilizer. He says the manure is better, and it costs 1,500 MT (50 USD) per ox-cart load. He says they now harvest at least 3 ox-cart loads of maize crop from the SIMLESA plot, which is up from the 1 ox-cart load that they used to harvest earlier.

When the crops are harvested, Bifolo sells them and brings the money to Anna, who makes the budget for the family. From the proceeds, they purchased a goat and 2 chickens. Most importantly, they are no longer in the critical condition where they would spend a lot of time looking for food, instead of preparing the fields in readiness for planting. Since 2011, there has been no food shortage on their farm. They now have food for the months of February and March, a period earlier associated with severe food shortage.

Good Practice

The use of manure instead of fertilizers by the Bifolo family, while extending the SIMLESA technology to other pieces of land, has proved appropriate to their needs.

Lesson Learnt

Poor farmers are able to integrate new and old knowledge and to improvise on the technology for ease of their scaling out especially for issues related to affordability of the inputs.



2.4.4 Gendered division of labour — Adriano Gabriel

Adriano Gabriel is a 35-year-old married male from Chipole in Angonia district, Mozambique with 5 children, 3 girls and 2 boys. The first born is 12 years old and the last is 1½ years old. Two of his children go to school. Gabriel owns 3 ha of land. Since he normally works alone, he has only been able to cultivate 2 ha. When his wife goes with him to the farm, they leave at 5.00 am and return at 11.00 am to prepare some food for the children, and then return to the farm from 2.00 pm to 5.00 pm. In most cases, the children are left at home alone.

Adriano grows maize, groundnut and pigeonpea on plots of about 20 x 10 m. Apart from the SIMLESA plots, he has extended the technology to grow maize and beans on another plot of about 20 x 60 m. Adriano

says prior to employing SIMLESA technology, he would harvest less than 1 ox-cart load of the crop, but now, from the same land, he is able to harvest at least 3 ox-cart loads.

As a result of the improved income, Gabriel is able to hire at least 2 labourers to help him on the farm, so that the wife only goes to the farm during harvesting. She now concentrates on ensuring good storage for the grain. After building the bamboo silo, Gabriel leaves its control and management to his wife, to avoid the temptation of selling the produce. Even when he sells the produce he gives the money to his wife to keep. Gabriel has bought a radio, a bicycle and a pig, which has produced 5 piglets that are now 2 months old. Adriano plans to sell their produce to buy clothes for his children as well as purchase fertilizer to expand the SIMLESA CA technology to another plot of 50 x 70 ft.

Good Practice

Gabriel managed to accord priority to the child care role of his wife when he was able to hire labour for agricultural operations. Increased income from implementing the SIMLESA technology made this possible for him.

Lesson Learnt

The welfare of children in poor households is often compromised by the need of the parents to search and provide food for them. Practising SIMLESA technologies have resulted in increased productivity and production, as well as improvement in children welfare due to saving time and labour by the household.

2.4.5 Seed preservation – Argentina de Glória Celano

Argentina de Glória Celano is a 60-year-old widow, who lost her husband in 2003. Argentina dropped out of primary school in fourth grade. She produced 6 children, of whom 4 are alive. Farming has always been the core activity of the family. Although she used to hire labourers to do most of the work, she cannot afford many of them anymore.

Argentina and her husband used to own 100 ha of land, but most of the land has been taken over by people formerly displaced by the war that ravaged the



Ernesto in Argentina de Gloria Celano's SIMLESA soya bean field.



Argentina's Silos: The seed Silo is hoisted high on pillars and also serves as a kitchen, so the smoke from the fire prevents attack by weevils and ensures low moisture content in the stored grain.



Seed storage: maize cobs inside Argentina's silo.

county. Although she has a land title and still pays government dues on the land, she can only access 30 ha for cultivation.

Celano grows a wide range of crops, including beans, maize and sunflower, but the yields are very low. The low maize productivity (0.6 – 0.9 tonnes)/ha has compelled her to change to soya bean, which is in increasing demand from manufacturers of animal feed.

Argentina is a member of the Abelha IDEEA group, which started working with SIMLESA

two years ago. The group welcomed the participation in SIMLESA as an opportunity to improve crop yields, as well as to have access to new varieties. The group is hosting trials for maize (PAN 53, ZM 523) and soya bean (H7, H17, H19, Soprano, TGX) varieties.

According to Argentina, the new varieties of maize are easy to cook, but very vulnerable to pest attack when in storage. In the 2012/2013 season, Argentina did not have access to seed because of high prices (90 MT/kg ≈ US\$ 3). Argentina earns her livelihood from the farm. Argentina says she has to farm because it is what she knows to do and she knows nothing else. She looks after 7 orphans, aged 7 to 16 years, who live with her, and they help with the cultivation when not in school.

Good Practice

In the SIMLESA programme, all the harvest that is collected from the trial plots is left with the farmer. While this motivates the farmer to continue with the programme activities, it also gives the farmer access to quality seed for multiplication and planting in the next season.

Lessons Learnt:

Poor households, most of which are female-headed households like Argentina's, are easily affected by high prices of seed at planting time. Without storage of seed from the previous season, they can fail to cultivate. Involvement of poorer women with a knowledge and passion for agriculture in the programme taps into their indigenous knowledge, such as the traditional seed preservation techniques.

2.5 Tanzania

The SIMLESA programme has been promoting Conservation Agriculture (CA) in Tanzania since 2010. The programme has benefitted many farmers and this could be attributed to the selection of farmers whereby it was almost equal numbers of male and female farmer participation. Integration of gender in programme activities provided guidance on how to resolve some of the emerging conflicts as a result of the implementation of the CA technologies. Deliberate strategies are required to increase the participation of the youths in SIMLESA programme activities.

2.5.1 Participation in SIMLESA activities – Eastern Zone, Tanzania

The SIMLESA project in Tanzania was launched in 2010, with effective on-farm implementation in the 2011 cropping season. In the Eastern zone, the programme is implemented in the three districts of Gairo, Mvomero and Kilosa in the Morogoro region. Six communities, each of which consisted of farmer research groups, are participating in the programme. The selection of the site within the region and district was based on the existing potential for the maize-legume system, as determined by a team lead by a NARS scientist, together with district and village extension officers.

The criteria for host farmer selection, collectively set at a meeting include the following: the ownership of a field/farm of not less than one acre, willingness to offer the field/farm for at least four consecutive years, and accessibility to the farm. Following these guidelines, the village extension officer selected the farmers to host demonstration plots in the community. Table 1 shows the distribution of host farmers in the eastern zone by sex.



Elisha Mkandya – Assistant Objective 1 Leader, Eastern Zone, Tanzania.

Table 1. Total numbers and distribution of host farmers by sex, community and district in Eastern Zone, Tanzania.

| Zone | District | Community | No. of host farmers | Male | Female | Youth |
|--------------|----------|---------------|---------------------|-----------|-----------|----------|
| Eastern | Gairo | Msingisi | 8 | 6 | 2 | 0 |
| | | Makuyu | 6 | 2 | 4 | 0 |
| | | Milama | 3 | 0 | 3 | 0 |
| | | Vitonga | 5 | 3 | 2 | 0 |
| | Kilosa | Dodoma Isanga | 5 | 2 | 3 | 0 |
| | | Mandela | 7 | 5 | 2 | 0 |
| Total | | | 34 | 18 | 16 | 0 |

Although not implicitly prioritised in the criteria, the programme had almost an equal number of females and males represented among the host farmers. During the evaluation of demonstration plots, there were conscious efforts to ensure equal participation of men and women.

The host farmers were expected to make a contribution in the form of grain, equivalent to the cost of inputs, to an agreed fund or community activity. The cost of inputs was determined before planting, and so was the equivalent amount of grain to be contributed at the end of the season. These costs would include the cost of weeding if the farmer was not able to do that.

The programme had seven extension officers (3 male and 4 female) working in the Eastern zone. Six of the extension officers were based at the sites, and one at the district level (female). The extension officers supervised the overall activities of the SIMLESA programme at the village level. The extension staff had undergone some training in socioeconomic data collection. Only the staff based at the district had undergone some training in gender mainstreaming. It was hoped that since training is continuous, integration of gender aspects in the training would occur.

Good Practice:

There was almost equal participation of male and female farmers in the SIMLESA activities in the Eastern zone of Tanzania.

Lessons Learnt

The SIMLESA programme can strive for equal representation of all categories of people, so that they can all benefit from the programme. The low participation of youth as of now in the programme activities needs to be explored and corrected.

2.5.2 Livestock and crop farmer conflicts

The SIMLESA programme is implemented in the villages of Rhotia kati, Kilimatambo and Bashay in Karatu District council of Tanzania. A conflict arose between the livestock and crop farmers at this programme site, stemming from the CA practice of using crop residues to mulch the fields. Studies¹¹ on pastoralism have shown that no pastoral group is entirely self-sufficient; instead it tied in relations of interdependency and reciprocity to sedentary communities in adjacent areas. The pastoral adaptation presupposes the presence of sedentary communities and access to their products. A mutually beneficial relationship between crop and livestock farmers used to exist, with the latter grazing their animals on crop land after the crops had been harvested and the former getting benefits from animal droppings that would serve as manure for the soils.

With the introduction of CA, the crop farmers have to restrict grazing on the land, because the crop residue is left to cover the soils. Consequently, the livestock keepers have resorted to stealing the crop residues at night, away from the watch of the crop farmers. In turn, the crop farmers have resorted to poisoning the crop residues, which resulted in the death of animals.

In an attempt to resolve this conflict, a survey was conducted, in which both livestock and crop farmers were interviewed. The results of the investigation suggested that the escalation

11. Dawn Chatty (2006) Nomadism of the Middle East and North Africa facing the 21st Century

of the conflict was primarily due to poor implementation of the bye-laws already agreed upon by the village government. There was lack of awareness on proper land use, from both livestock and crop farmers practicing CA. In the face of diminishing agricultural resources, such as soil fertility, and increasing population pressure, necessitating the cultivation of more food, there is a need to plan resource allocation better, in order to attain sustainable development with minimum conflicts. There is also a need for the district council and the central government to identify the best land-use practices for each region.

The recommendations of the investigation included the following: conducting of a proper study to provide a lasting solution to the problem, training of village councils on land management and environmental aspects, advocacy among both livestock and crop farmers on proper land use, and strict enforcement of bye-laws by the village councils.

Good Practices

A participatory approach involving all stakeholders in conflict resolution is a good practice by the authorities, because resourcebased conflicts between livestock and crop farmers are common in communities. A comprehensive study of the conflict is necessary for crafting long-lasting solutions.

Lessons Learnt

When new practices are introduced in a community, they could destabilize traditional linkages in farming systems and relations in the community.

2.5.3 Sharing of farm benefits – Youth Vitonga community

Vitonga village was founded in 2009 by immigrants from other areas. The village derives its name from the large number of Mtonga trees that populated the area. The first migrant to come to Vitonga was Fabian Malewa, who came to work for a white man. Knowing that the land in Mgeta, where he hailed from, was exhausted, he invited people from his community to come to Vitonga, where land was still fertile. The people of Vitonga are principally crop farmers, growing mostly maize, pigeonpea and tomato.



Farmers' Focus Group Discussion.



Extreme left, Ashura Saidi, the Village Secretary, leads the women's Focus Group Discussion.

Since the introduction of the SIMLESA programme, there has been an observable improvement in food security, evidenced by the surplus produce available for sale. The income generated is used to pay for other household necessities, with the result that children are better fed and are better able to meet school requirements.

The women's focus group discussion observed that with the SIMLESA CA technology, there was a big difference in the herbicide-treated plots, which require less capital to cultivate. In addition to saving money for labour, the technology also saves time, enabling them to perform other duties, such as gathering firewood and fetching water for the household. They were anxious to see the SIMLESA programme expanding to cover a larger area, and particularly requested for training in herbicide usage. They noted that the delivery of inputs was not synchronised; sometimes, the seeds were delivered late, when the rains were about to end, and at other times the herbicides were delivered without the seeds. The women were determined to find the means of financing the purchase of herbicides and seeds at the end of the project. According to the women, the biggest disincentive to the innovations was the low prices of produce, and yet the price of seed at the planting season is very high.

The men's focus group discussion appreciated the reduction in labour and the harvesting of at least two crops from the same land in the practice of CA. Previously, the men spent 6-8 hours each day for about 3 days on land preparation. The men apply fertilizers and herbicides, but women fetch the water used.

Labour demand for harvesting has increased as a result of the improved crop yields, so they hire labour. Women are preferred when hiring labour, because they are said to be careful workers and more trustworthy. These women are paid TSh 3,000 (= US\$2) per day.



Rose Sakwera – Gender Focal Point facilitating the Men’s Focus Group Discussion (FGD).

The women’s and men’s groups had different views on the lack of youth involvement. The women said the youth do not like digging, but preferred odd jobs or migrated to the urban centres in search of a good life, only to return to the village when they fail. On the other hand, the men held responsible the low levels of youth involvement in agriculture to the lack of available land for farming. Most youth were expected to provide labour on the family land, and yet all the benefits accruing are under control of the family head, with no direct share for the youth. Apart from feeding, the youth have unmet needs, so they seek employment elsewhere to fulfill these needs. Youth tend to get involved in farming when they are allocated their share of the land to own and manage. Another constraint is the mode of delivering information. For instance, information about the programme at this site was given to people found working at a school bridge. Those who were present and interested were asked to register. This method tends to exclude those not at the site, especially women who do not usually participate in such community projects. The youth need more information and some convincing, if they are to get interested in agriculture.

Good Practice

Specific targeting of the youth through information dissemination and invitation to meetings to discuss their participation encourages youth participation in agricultural innovations for improved productivity.

Lesson Learnt

The youth can contribute to agricultural production if they are given a share in the production assets and an equitable share of the benefits.

2.5.4 Community approach — Makuyu Village

Makuyu village in Mvomero district, Morogoro Region of Tanzania is one of the villages where the SIMLESA programme is implemented. Previously, this village was the highest producer of maize crop in the Mvomero Ward. Recently, however, the farmers' yields have been adversely affected by the activities of cattle farmers in search for dry-season grazing for their animals.

In 2012, when crops were ready for harvesting, Mr Ramadhani Gogo, one of the SIMLESA host farmers was shocked to find his maize plot grazed by a herd of cattle. Gogo decided to take the case to the courts of law, an act that was disputed by some of the community members. The cattle owner was fined TSh. 200,000 (= ≈ US\$ 125), a stiff penalty to deter any other cattle owners from grazing their animals on the SIMLESA plots. The livestock farmer was strongly warned that a repeat action would attract stiffer penalty, including imprisonment.



Ramadhani Gogo, SIMLESA host farmer.

The pastoral community has different values and to them livestock is more important than crops, even though they get grain from crop farmers. Due to the rampant cases of this nature, the authorities have decided to resolve such matters in the courts of law. During discussion with the pastoral community, they regretted the grazing of animals on cultivated land, but also confessed that they do not have any skills other than those of livestock keeping. They did suggest that the pastoralists should be given crop cultivation skills to enable them to grow crops. They proposed that they should be involved in farmer training, as well as participation in farmers' field days, to enable them to change their beliefs and embrace other production roles.

One of the livestock farmers suggested that the Government should recognize cattle keeping as a means of livelihood in the community. As livestock farmers, they were just learning about crop cultivation. "We are human beings and we see the effects of climate change, but we need government intervention, he said: "We need time to learn about crop cultivation." "How can they expect us to survive without cattle", he asked, "unless they train us to do something else, such as grow crops?"

Good Practice

Communities are not homogenous and depend on different sources of livelihood. Holding discussions with pastoralists provided a better understanding of their needs, thus providing an opportunity to explore their willingness to change their lives according to the changing conditions brought by climate change and growing human populations.

Lessons Learnt

Gender analysis to understand the needs of all categories of people in the community is important for the sustainability of technology, impact on investment and adoption of innovations.

2.5.5 Gender and appropriate technology — Gaetano Alfonse Kurinyago



Gaetano explains to Sakwera how he gets firewood.

Gaetano Alfonse Kurinyago is an old man who migrated from Mgeta village to Vitonga over 10 years ago, leaving his wife and children behind. The Mgeta area is very hilly and densely populated, which has put pressure on the land. When Kurinyago moved to Vitonga, he was able to get land for cultivation. Later, two of his sons followed him and they also got farmland.

Gaetano participates in the SIMLESA project and decided to adopt the technologies on his land because of the three anticipated benefits: food, sauce and firewood. He gets sauce from the pigeonpea and food from the maize. He narrated that after harvesting the pigeonpea, he strips the leaves off the stalks, retaining them in the field as mulch and uses the woody part as firewood. According to Gaetano, too many stalks in the field make it difficult to put in place the rope for line planting, which is his reason for removing the pigeonpea stalks from the field.

Gaetano appreciates the skills he gained in fertilizer and herbicide usage, without disturbing the soil. Using CA, he is able to plant a large area, up to 3-5 acres, as compared to the $\frac{1}{4}$ acre when he used a hand hoe. Better still, he does not have to bend, as he used to when weeding using a hand hoe.

Good Practice

Provision of appropriate technological tools and skills for cultivation facilitated Gaetano's participation in CA innovation.

Lesson Learnt

Using CA technology with appropriate inputs saves time and reduces drudgery, enabling even the elderly and weak to cultivate enough food to meet the needs of their households.

Annex 1

Gender differences in rural populations

| Gender differences | Major Factors |
|---|--|
| Higher information paucity for and among women compared to men | Rural women are faced with narrow choices of information and low perceptions of the value of indigenous knowledge, which is their strong point. The negative effects of this information gap in terms of health, agriculture and livestock farming systems, harvesting and marketing, and environmental resource management put the typical rural woman at a distinct disadvantage. |
| Women's relatively lower access to and control over resources | Lack of access to and control over land, water, and energy resources is a key factor of economic poverty, social exclusion, political subordination, and cultural marginalization. Relative to men, women are more likely to suffer the consequence of systemic loss of control over resources, and this also applies to their control over information and communication technology (ICT) assets. |
| Imbalances in education and training between men and women | Rural girls and women face a challenging set of circumstances, in which the school system and the social structure reinforce each other and work against women's equal access to training, from primary education to higher qualifications to life-long learning. |
| Lack of balance in representation of women's and men's needs and interests | Whether through intermediary agencies, local government bodies, and farmers' associations, microcredit institutions, or capacity-building organizations, rural women lack a voice in determining or negotiating their strategic needs, and again, compared to men, are more likely to be left behind in articulating their specific interests. Communication media also play a dual role in reinforcing and challenging gender stereotypes. |
| Different gender roles in food production | In many regions of the world, women play a vital, if under-recognized and unsupported, role in food production. They have less access to extension training, affordable credit, and loans than do men. This works against their access to ICT assets as well. By implication, women have less of an opportunity to articulate, negotiate, or act upon their concerns in the food production sector at the policy level. At the same time, research indicates that women make up to 65 percent of day-to-day on-farm decisions and 80 percent of marketing decisions. |
| Women's greater dependence on environmental income | Rural women derive a significant portion of their total income from ecosystem goods and services (forests, grasslands, lakes, and marine waters provide resources, such as building materials, fuel, fish, medicinal plants) and from small-scale agriculture. Because of this dependence on environmental income, the poor are especially vulnerable to the ecosystem. |

Source: Voegelé and Villarreal (2009).

Annex 2

Gender-based differences in agriculture

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| Land | Land title and tenure tend to be vested in men, either by legal condition or by socio-cultural norms. Land reform and resettlement have tended to reinforce this bias against tenure for women. Land shortage is common among women. Women farm smaller and more dispersed plots than men and are less likely to hold title, secure tenure, or the same rights to use, improve, or dispose of land. |
| Extension | Women farmers have less contact with extension services than men, especially where male-female contact is culturally restricted. Extension is often provided by men agents to men farmers on the erroneous assumption that the message will trickle “across” to women. In fact, agricultural knowledge is transferred inefficiently or not at all from husband to wife. Also, the message tends to ignore the unique workload, responsibilities, and constraints facing women farmers. |
| Technology | Women generally use lower levels of technology because of difficulties in access, cultural restrictions on use, or regard for women’s crops and livestock as low research priorities. |
| Finance | Women have less access to formal financial services because of high transaction costs, limited education and mobility, social and cultural barriers, the nature of their businesses, and collateral requirements, such as land title, that they can’t meet. |
| Time | Women face far greater time constraints than men. They may spend less time on farm work but work longer total hours on productive and household work and paid and unpaid work, due to gender-based division of labour in child care and household responsibilities. |
| Mobility | Women are less mobile than men, both because of their child care and household responsibilities and because of sociocultural norms that limit their mobility. |
| Education and Training | Women are less educated in parts of Africa, Asia, and the Middle East. Illiteracy hampers their access to and ability to understand technical information. Worldwide, women have less access to education and training in agriculture. |

Source: The World Bank. World Development Report (2008).

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Acronyms and abbreviations

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| ACIAR | Australian Centre for International Agricultural Research |
| ASARECA | The Association for Strengthening Agricultural Research in Eastern and Central Africa |
| CA | Conservation Agriculture |
| CIMMYT | International Maize and Wheat Improvement Centre |
| DA | Development Agent |
| DBAA | District Bureau of Agriculture and Administration |
| EPA | Extension Planning Area |
| FAO | Food and Agriculture Organisation |
| FHH | Female-headed Household |
| GAD | Gender and Development |
| GDD | Gender Disaggregated Data |
| IDEAA | Initiative for development and Equity in African Agriculture |
| KARI | Kenya Agricultural Research Institute |
| KALRO | Kenya Agricultural and Livestock Research Organisation |
| M&E | Monitoring and Evaluation |
| MARC | Melkassa Agricultural Research Center |
| MHH | Male-headed household |
| MoA | Ministry of Agriculture |
| NARS | National Agricultural Research Systems |
| PRGA | Participatory Research & Gender Analysis |
| PVE | Participatory Variety Evaluation |
| PVS | Participatory Varietal Selection |
| SDD | Sex Disaggregated Data |
| SIMLESA | The Sustainable Intensification of Maize-Legume cropping systems for food security in Eastern and Southern Africa |
| UN WOMEN | The United Nations Entity for Gender Equality and the Empowerment of Women |

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SIMLESA promoted the cultivation of beans, which are generally seen mainly as a woman's crop. Increased productivity of beans therefore offers women an opportunity to upgrade their incomes, food and nutrition security and the well-being of the households in general.



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